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-Q=/abss/ABSSWEB_spool/US09751299/runat_26042006_090036_18677/app_query.fasta_1
-DB=PIR -QFMT=fastan -SUFFIX=rpr -MINANTCH=0.1 -LOOPEL=0 -LOOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000 -HOST=abss02p
-USER=US09751299 @GGN_1 _77 @runat_26042006_090036_18677 -NCPU=6 -ICPU=3
-NORMAP -NEG_SCORES=0 -MAIT -DSPBLOCK=100 -LONGLOG -DEV_TIMEOUT=120
-WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6 -FGAPEXT=7
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ALIGNMENTS

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Best Local Similarity:
Query Match:
DB: A;Cross-references: UNIPROT:P20960; UNIPARC:UPI0000033514; GB:D13419; NID:g216202; PIDN:E A;Note: sequence extracted from NCBI backbone (NCBIN:122081, NCBIP:122082)
R;Nagasawa, T.; Mauger, J.; Yamada, H.
Eur. J. Biochem. 194, 765-772, 1990
A;Title: A novel nitrilase, arylacetonitrilase, of Alcaligenes faecalis JM3. Purification A;Reference number: S13860; MUID:91099356; PMID:2269298
A;Accession: S13860 nitrilase (EC 3.5.5.1), arylacetone-specific - Alcaligenes faecalis C;Species: Alcaligenes faecalis C;Species: Alcaligenes faecalis C;Date: 21-Sep-1993 #sequence_revision 18-Nov-1994 #text_change 31-Dec-2004 C;Accession: A47181; S13860 R;Kobayashi, M.; Izui, H.; Nagasawa, T.; Yamada, H. Proc. Natl. Acad. Sci. U.S.A. 90, 247-251, 1993 A;Title: Nitrilase in biosynthesis of the plant hormone indole-3-acetic acid from indole A;Reference number: A47181; MUID:93126352; PMID:8419930 A;Contents: JM3 A;Cross-references: UNIPARC:UPI0000175E31 C;Superfamily: nitrilase (carbon-nitrogen hydrolase) C;Keywords: hydrolase A;Molecule type: protein A;Residues: 1-33 <NAG> A; Molecule type: DNA A; Residues: 1-356 < KOB> A;Accession: A47181 A;Status: preliminary Score: Alignment Scores: A;Status: preliminary No.: 6.26e-49 869.00 65.3% 50.6% 46.2% Conservative: Mismatches: Indels: 356 172 50 108 10

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C;Date: 10-Jun-1993 #sequence_revision 18-Nov-1994 #text_change 31-Dec-2004 C;Accession: A45070 R;Kobayashi, M; Komeda, H.; Yanaka, N.; Nagasawa, T.; Yamada, H.
J. Biol. Chem. 267, 20746-20751, 1992 A;Title: Nitrilase from Rhodococcus rhodochrous J1. Sequencing and overexpression o A;Reference number: A45070; MUID:93015976; PMID:1400390 A;Contents: J1 A;Contents: J1 A;Accession: A45070
A;Accession: A45070
A;Accession: Preliminary A;Molecule type: DNA; protein A;Residues: 1-366 <KOB> A;Conse references: UNIPROT:Q03217; UNIPARC:UPT000016FF36; GB:D11425; NID:g216933; A;Note: sequence extracted from NCBI backbone (NCBIN:116039, NCBIP:116040) C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGCGCCTGATCGCATTCCCAGAGACTTGGATTCCCGGCTATCCCTTTTGGATATGGCTG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ||| :::||||||:::||| ::: :::||| :::||| :::||| |||||::: AspAlaAlaLysThrValAspLysThrValSerIleIleAlaGluAlaAlaArgAsnGly 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetAspSerProHisValGlnArgLeuLeuAspAlaAlaArgAspHisAsnIleAlaVal
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44.3%
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RESULT 3
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A43470
aliphatic nitrilase - Rhodococcus rhodochrous
C.Species: Rhodococcus rhodochrous
C.Species: Rhodococcus rhodochrous
C.Species: Rhodococcus rhodochrous
C.Species: Rhodococcus rhodochrous
C.Soccession: A43470
R.Kobayashi, M.; Yanaka, N.; Nagasawa, T.; Yamada, H.
Biochemistry 31, 9000-9007, 1992
A.Fitle: Primary structure of an aliphatic nitrile-degrading enzyme, aliphatic nitrilase
A.Reference number: A43470; MUID:93003039; PMID:1390687
A.Rocession: A43470
A.Rocession: A43470
A.Residues: DNA; protein
A.Residues: 1-383 <KOB>
A.Residues: 1-383 <KOB>
A.Rocession: A43470; NID:92068; UNIPARC:UPI0000130516; GB:D12583; NID:9216931; PIDN
A.Rocession: A63470; NID:9216931; PIDN
A.Rocession: A63470; NID:9216931; PIDN
A.Residues: 1-383 <KOB>
A.Residues: 1-383 <KOB>
A.Rocession: A63470; NID:9216931; PIDN
A.Rocession: A63470; NID:9216931; PIDN
A.Rocession: A63470; NID:9216931; PIDN
A.Residues: 1-383 <KOB>
A.Rocession: A63470; NID:9216931; PIDN
A.Rocession: A63470; NID:921
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C;Species: Klebsiella ozaenae
C;Species: Klebsiella ozaenae
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change
C;Accession: A28658
R;Stalker, D.M.; Malyj, L.D.; McBride, K.E.
J. Biol. Chem. 263, 6310-6314, 1988
A;Title: Purification and properties of a nitrilase specific for
A;Reference number: A28658; MUID:88198177; PMID:2834373
A;Accession: A28658
A;Molecule type: DNA
A;Residues: 1-349 <STA>
A;Cross-references: UNIPROT:P10045; UNIPARC:UPI000013051A; GB:J0.
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
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RESULT 5
JC4212:
JC4212:
nitrilase (EC 3.5.5.1) - Comamonas testosteroni
C;Species: Comamonas testosteroni
C;Date: 14-Nov-1995 #sequence_revision 08-Feb-1996
C;Accession: JC4212; pc4056
R;Levy-Schil, S.; Soubrier, F.; Crutz-Le Coq, A.M.;
                                                                                                                              316 GlyAspGluAspProArgAlaAlaCysGluPro---
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C;Superfamily: nitrilase (carbon-nitrogen
C;Keywords: hydrolase
F;163/Active site: Cys #status predicted
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A;Residues: 154-162;295-302;323-340 <LE2>
A;Residues: 154-162;295-302;323-340 <LE2>
C;Comment: This enzyme is active on adiponitrile and cyanovaleric acid.
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Best Local Similarity:
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A;Title: Aliphatic nitrilase from a soil-isolated Comamonas testosteroni sp.: Gene clonir
A;Reference number: JC4212; MUID:95369726; PMID:7642130
A;Accession: JC4212
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A; Residues: 1-354 <LEV>
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TGCTACGTGCTGGCGTCGTGCGCGACCGTTTCGCCGGAGATGATCAAGGTATTGGTGGAT
                            CysAlaSerThrAsnAlaMetHisGlnIleIleSerGlnPheTyrAlaIleSerAsnGln
                                                          TATGCGCTCGGACCGGAGGTCAATACCGCCGCAAGCCAGATCTACGCGGTCGAGGGCGGC
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A;Reference number: S74322; MUID:97061201; PM
A;Accession: S77025
A;Status: nucleic acid sequence not shown; tr.
A;Molecule type: DNA
A;Residues: 1-346 <KAN>
A;Cross-references: UNIPROT:Q55949; UNIPARC:UA;Note: the nucleotide sequence was submitted C;Genetics:
A;Start codon: GTG
C;Superfamily: nitrilase (carbon-nitrogen hydic;Keywords: hydrolase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nitrilase (EC 3.5.5.1) - Synechocystis sp. (strain PCC 6803)
N;Alternate names: protein sl10784
C;Species: Synechocystis sp.
A;Variety: PCC 6803
C;Date: 25-Apr-1997 #sequence_revision 25-Apr-1997 #text_cha C;Accession: S77025
C;Accession: S77025
C;Accession: S78to, S.; Kotani, H.; Tanaka, A.; Asamizu, E.; o, K.; Okumura, S.; Shimpo, S.; Takeuchi, C.; Wada, T.; Wata DNA Res. 3, 109-136, 1996
A;Title: Sequence analysis of the genome of the unicellular
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S77025
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ValTyrValIleMetSerThrAsnLeuValGlyGlnAspMetIleAspMetIleGlyLys
                   ThrPheValProTyrProTyrPheSerPheValGluProProValLeuMetGlyLys
                                                                                                    ValLeuAspAlaIleAlaAsnAlaAlaLysLysGlyValGluLeuIleValPheProGlu
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Matches:
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Yamada, M.; Yasud
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RESULT 7

101613

cyanide hydratase (EC 4.2.1.66) - imperfect fungus (Gloeocercospora sorghi)
Cyspecies: Gloeocercospora sorghi
Cyspecies: Gloeocercospora sorghi
Cypate: 30-Sep-1993 #sequence_revision 30-Sep-1993 #text_change 31-Dec-2004
CyAccession: JQ1613
RyMang, P.; VanEtten, H.D.
Biochem. Biophys. Res. Commun. 187, 1048-1054, 1992
A, Fitle: Cloning and properties of a cyanide hydratase gene from the phytopatho
A, Reference number: JQ1613; MUID:92412068; PMID:1382413
A; Accession: JQ1613
A; Accession: JQ1613
A; Molecule type: DNA
A; Residues: 1-368 < WAN-
A; Cross-references: UNIPROT: P32964; UNIPARC: UPI0000128C2E; GB:M99044; NID:g1681
C; Comment: This enzyme converts HCN to formamide.
C; Genetics:
A; Gene: Cht
C; Superfamily: nitrilase (carbon-nitrogen hydrolase)
C; Keywords: carbon-oxygen lyase; glycoprotein; hydro-lyase
F; 286/Binding site: carbohydrate (Asn) (covalent) #status predicted
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GATCCGGCGGCCACTATTCACGGCCCGACGTAACGCGGCTGCTGCTGGATCGACGTCCG
                               AspGlyLeuMetTyrValAspIleAspLeuAsnGluSerHisLeuThrLysAlaLeuAla
                                              GAGGGACTGCTGGTCGCCGATATCGACCTCGGCATGATCGCGTTGGCCAAGGCGGCGCCC
                                                                                                                                                     GTCGAGGGCGGCTGCTACGTGCTGGCGTCGTGCGGGACCGTTTCGCCGGAGATGATCAAG
                                                                       HisAlaArgilePheArgProAspGlySerLeuTyrAlaLysProAlaValAspPhe---
                                                                                                                                  GTATTGGTGGATACGCCC-----GACAAGGAGATGTTCCTCAAGGCCGGCGGCGGT
                                                                                                                                                                                                                                                                                                                                                            TTTGCCATGATTTTCGGGCCCGACGGCCGCGCCCCTGGCCGAGCCGCTCCCGGAGACCGAA 813
                                                                                                             -----ArgHisThrProProGlyValGluProGluThrAspAlaThrProTyrAsnGly
                                                                                                                                                                                             ProAspProAlaThrAsnTyrAlaAspProAlaSerAspLeuValThrProAlaTyrAla
                                                                                                                                                                                                                  CCGGAGGTCAATACC-----TACGCG
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                                                                                                                                                                                                                                                         GTCCACGTCGCGTCGTGGCCGAGCTTCAGCCTCTATCGCGCATGGCCTATGCGCTCGGA
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                                                                                                                                                                                                                                                                                                TGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGACGAACAG
                                                                                                                                                                                                                                                                                                                     GlySerGlyAspSerPheGluProValThrGlnThrGluIleGlyArgLeuGlyGlnLeu
                                                                                                                                                                                                                                                                                                                                    GGAGACGGC---AGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCCGCCGCCGCTC
                                                                                                                                                                                                                                                                                                                                                                                                                       AGCGAGCGCGCGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCCGATGGCGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                           GluMetArgArgIleArgAlaAlaAlaArgAspAsnGlnIleTyrValSerIleGlyVal 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTTGGGGCATGCGCTTCGTCCAGCGCTATTTCGAGAAATTCGCTCGTGCGCGGCAGCAAG
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A;Map position: 3
A;Introns: 44/1; 104/1; 202/1; 296/1
C;Superfamily: nitrilase (carbon-nit: C;Keywords: hydrolase
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R;Hillebrand, H.; Bartling, D.; Weiler, E.W.
Plant Mol. Biol. 36, 89-99, 1998
Plant Mol. Biol. 36, 89-99, 1998
A;Title: Structural analysis of the nit2/nit1/nit3 gene cluster encoding nitrilases,
A;Reference number: Z26007; MUID:98145459; PMID:9484465
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A; Residues: 1-346 <HIL>
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A; Residues: 1-346 < DAN>
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RESULT 9

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nitrilase (EC 3.5.5.1) 1 [imported] - Arabidopsis thaliana
N;Alternate names: protein Tl0D17.100

C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Jun-2000 #sequence revision 02-Jun-2000 #text_change 31-Dec-2004
C;Accession: 749147; T52263

R;D'Angelo, M.; Vezzi, A.; Modesto, D.; Pigazzi, M.; Valle, G.; Mewes, H.W.; Rudd,
submitted to the Protein Sequence Database, April 2000
                                                   A; Reference number: Z25017
A; Accession: T49147
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               A; Molecule type: DNA
A; Residues: 1-346 < DAN>
                                      A; Status: preliminary
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A;Cross-references: UNIPROT:P32961; UNIPARC:UPI0000001AE2; EMBL:AL353865; GSPDB:GN00061;
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AlaAspTyrSerLeu-----
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A; Residues: 1-346 < HIL>
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Proc. Natl. Acad. Sci. U.S.A. 91, 6649-53, 1994
A;Title: Differential regulation of an auxin-producing
A;Reference number: Z24515; MUID:8022831; PMID:8022831
A;Accession: T52263
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R;Hillebrand, H.; Bartling, D.; Weiler, E.W.
Plant Mol. Biol. 36, 89-99, 1998
A;Title: Structural analysis of the nit2/nit1/nit3 gene cluster encoding nitrilases,
A;Reference number: Z26007; MUID:98145459; PMID:9484465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Gene: ATSP: T10D17.100; nit1; NIT1
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ProValTyrAspThrProIleGlyLysLeuGlyAlaAlaIleCysTrpGluAsnArgMet
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A;Mclecule type: mRNA
A;Residues: 1-39 < case.
A;Cross-references: UNIPROT:P32962; UNIPARC:UPI0000001444; EMBL:X68305; NID:g22655; PID: R;Cross-reference number: Z25017
A;Reference number: Z25017
A;Residues: 1-39 < case.
A;Residues: 1-39 < case.
A;Residues: 1-39 < case.
A;Cross-references: UNIPARC:UPI000001444; EMBL:AL353865; GSPDB:GN00061; ATSP:T10D17.90
A;Experimental source: cultivar Columbia; BAC clone T10D17
A;Experimental source: cultivar Columbia; BAC clone T10D17
A;Experimental source: cultivar Columbia; BAC clone T10D17
A;Experimental source: Cultivar Columbia; BAC cloned nitrilases from Arabidopsis thaliana: A;Title: Molecular characterization of two cloned nitrilases from Arabidopsis thaliana: A;Residues: 1-39 < case.
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Cross-references: UNIPARC:UPI0000001444; EMBL:X68305; PIDN:CAA48377.1
A;Experimental source: cultivar Landsberg erecta
C;Genetics:
A;Gene: ATSP:T10D17.90
                                                                                                                                                                                                                                                                                                                                                                                                                                                       nitrilase (EC 3.5.5.1) [similarity] - Arabidopsis thalian ,Alternate names: T10D17.90 C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text. C;Accession: S31969; T49146; T52258 R;Bartling, D.; Seedorf, M.; Schmidt, R.C.; Weiler, E.W. submitted to the EMBL Data Library, September 1992 A;Description: Arabidopsis thaliana nitrilases are encode A;Reference number: S31969 A;Accession: S31969
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A;Introns: 37/1; 97/1; 195/1; 289/1
A;Introns: 11/1; 191/1; 195/1; 289/1
C;Superfamily: nitrilase (carbon-nitrogen C;Keywords: hydrolase
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GAGCCGCTCCCGGAGACCGAAGAGGGACTGCTGGTCGCCGATATCGACCTCGGCATGATC
                                                       AspSerIleValSerGlnGlyGlySerVallleIleSerProLeuGlyGlnValLeuAla
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                                                                                             TICCICAAGGCCGGCGGGTTTTGCCATGATTTTCGGGGCCGACGGCCGCGCCCTGGCC
                                                                                                                                 LysAspPheProAspHisProAspTyrLeuPheThrAspTrpTyrAspAspLysGluPro
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TrpGlyGlnGlyAspGlySerThrIleProValTyrAspThrProIleGlyLysLeuGly
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nitrilase (EC 3.5.5.1) 2 (imported) - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 20-Oct-2000 #sequence_revision 20-Oct-2000 #text_change 31-Dec-2004
C;Accession: T52259
R;Hillebrand, H.; Bartling, D.; Weiler, E.W.
Plant Mol. Biol. 36, 89-99, 1998
A;Title: Structural analysis of the nit2/nit1/nit3 gene cluster encoding nitrilases, enz
A;Reference number: Z26007; MUID:98145459; PMID:9484465
A;Accession: T52259
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-339 <HIL>
A;Rosidues: 1-339 <HIL>
A;Rosidues: 1-339 <HIL>
A;Cross-references: UNIPROT:004907; UNIPARC:UPI00000A5899; EMBL:Y07648; PIDN:CAA68934.3
A;Experimental source: cultivar Columbia
C;Genetics:
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A;Introns: 37/1; 97/1; 195/1; 289/1
A;Introns: 37/1; 97/1; 195/1; 289/1
C;Superfamily: nitrilase (carbon-nitrogen
C;Keywords: hydrolase
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GlnGlyGlnPheLeuGlyLysHisArgLysLeuMetProThrSerLeuGluArgCysIle
                                       GATGGCGATCTGATCGCCGCGCGCGCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTG 420
                                                                                                     GCCGGCTATAGCGAGCGCGGCGGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCC
                                                                                                                                                           ProGlyProGluValGluLysLeuAlaGluLeuAlaGlyLysAsnAsnValTyrLeuVal
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                                                                              MetGlyAlaIleGluLysAspGlyTyrThrLeuTyrCysThrAlaLeuPhePheSerPro
                                                                                                                                                                                                 ValHisAsnGluGluGlyArgAspGluPheArgLysTyrHisAlaSerAlaIleLysVal
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                                                                                                                                                                                                                                        A;Cross-references: UNIPROT:P32961; UNIPARC:UPI0000130513; C;Superfamily: nitrilase (carbon-nitrogen hydrolase) C;Keywords: hydrolase
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Query Match:
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A; Residues: 1-346 <BAR>
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156 TrpGlyGlnGlyAspGlySerThrIleProValTyrAspThrProIleGlyLysLeuGly
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                      LysServalThrPheValThrLysValGluLysAlaGluAspAsp 343
                                                       GCGGGCCACTATTCACGGCCCGACGTAACGCGGCTGCTGCTGGATCGACGTCCGGCCCAA 939
                                                                                                                                             ATGATTTTCGGGCCCGACGGCCGCCCCTGGCCGAGCCGCTCCCGGAGACCGAAGAGGGA
                                                                                                                             ValileIleSerProLeuGlyGlnValLeuAlaGlyProAsnPheGluSer---GluGly
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                                        CGCGTCGTCACGCTTGATGCCGCATTCGAACCGCAAAACGAGGAC 984
                                                                                          LeuValThrAlaAspIleAspLeuGlyAspIleAlaArgAlaLysLeuTyrPheAspSer
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| AlaThrIleAspLysAlaGluLysTyrIleValGluAlaAlaSerLysGlyAlaGluLeu 60
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A;Gene: NIT2
A;Map position: 3
A;Introns: 37/2; 97/1; 195/1; 289/1
C;Superfamily: nitrilase (carbon-nitrogen C;Keywords: hydrolase
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A;Residues: 1-339 <BAR>
A;Residues: 1-339 <BAR>
A;Cross-references: UNIPROT:P32962; UNIPARC:UPI000016DA4C; EMBL:U38845; PIDN:AAB05220.1
A;Experimental source: cultivar Columbia
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TATCGCGGCATGGCCTATGCGCTCGGACCGGAGGTCAATACCGCCGCAAGCCAGATCTAC
                                                   IleGluLeuTyrCysAlaProThrAlaAspGlySerLysGluTrpGlnSerSerMetLeu 215
                                                                                                         GAACAGGTCCACGTCGCG----
                                                                                                                                                                                    GCGCTCTGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGAC
                                                                                                                                                                                                                                                           TrpGlyGlnGlyAspGlySerThrIleProValTyrAspThrProIleGlyLysLeuGly 175
                                                                                                                                                                                                                                                                                                                                                                  GlnGlyGlnPheLeuGlyLysHisArgLysLeuMetProThrSerLeuGluArgCysIle
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                                                                                                                                                       AlaAlaIleCysTrpGiuAsnArgMetProLeuTyrArgThrAlaLeuTyrAlaLysGly 195
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nitrilase-like protein [imported] - rice
C;Species: Oryza sativa (rice)
C;Date: 20-Oct-2000 #sequence_revision 20-Oct-2000 #te
C;Accession: T52266
R;Chiba, R.; Dohmoto, M.; Yamaguchi, K.
submitted to the EMBL Data Library, May 1999
A;Description: Oryza sativa, a gene for nitrilase-like
A;Reference number: Z26008
A;Accession: T52266
A;Status: preliminary; translated from GB/EMBL/DDBJ
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C;Superf
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DB:
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A;Experimental source: cultivar Nipponbare
C;Genetics:
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nitrilase (EC 3.5.5.1) 4B - common tobacco (C.Species: Nicotiana tabacum (common tobacco) (C.Species: Tolda (C.Species: Tolda (C.Species: Data Library, January 1996 A.Reference number: Z15044 A.Accession: T03739 (C.Species: Data Library, January 1996 A.Recession: T03739 (C.Species: Tolda (C.Species: Data Library, January 1996 A.Recession: T03739 (C.Species: Tolda (C.Sp
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A;Genet INIT4B
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
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                                                                    259 ThrGluAspLeuThrProAspSer-----IleValCysAlaGlyGly------SerVal 274
                                                                                                                    239 AlaAsnGlnPheCysArgArgLysAspTyrProProProProGluTyrValPheSerGly 258
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                                          ATTTTCGGGCCCGACGGCCCCTGGCCGAGCCGCTCCCGGAGACCGAAGAGGGACTG
                                                                                              GTGGAT-----ACGCCCGACAAGGAGATGTTCCTCAAGGCCGGCGGCGGTTTTGCCATG
CTGGTCGCCGATATCGACCTCGGCATGATCGCGTTGGCCAAGGCGGCGGCCGATCCGGCG
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|GlyHisTyrAlaArgProGluValLeuSerLeuIleVal 326
           GGCCACTATTCACGGCCCGACGTAACGCGGCTGCTGCTG 921
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Search Job tim rch completed: April 27, 2006, 01:38:18 time : 48.019 secs

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Result
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-Q=/Abss/ABSSWEB_spool/US09751299/runat_26042006_090034_18631/app_query.fasta_1
-Q=/Abss/ABSSWEB_spool/US09751299/runat_26042006_090034_18631/app_query.fasta_1
-DB=UniProt -QEMT=fastan -SUFFIX=rup -MINMATCH=0.1 -LOOFCL=0 -LOOFEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRAMS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000 -HOST=abs802p
-USER=US09751299 @GGN 1 1580 @runat 26042006_090034_18631 -NCPU=6 -ICPU=3
-NORMAP -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG -DEV_TIMEOUT=120
-MARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6 -FGAPEXT=7
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Score: Percent Similarity: Best Local Similarity: Query Match: DB: Alignment RESULT 1 Q6RWK5_9ZZZZ W. PubMed150684; DOI=10.1128/AEM.70.4.2429-2436.2004; PubMed150684; DOI=10.1128/AEM.70.4.2429-2436.2004; AR Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M., Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K., RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M., WA Mathur E., Kretz P.L., Burk M.J., Short J.M.; "Exploring nitrilase sequence space for enantioselective catalysis."; LAPPL Environ. Microbiol. 70:2429-2436(2004). REMBL; Av487497; AAR97444.1; -; Genomic DNA. REMBL; Av487497; AAR97444.1; -; Genomic DNA. RGO; GO:0018762; F:aliphatic nitrilase activity; IEA. RGO; GO:0018767; P:nydrolase activity, acting on carbon-nitrog. ..; IEA. RGO; GO:0018807; P:nitrogen compound metabolism; IEA. RICHEPTO; IPR000132; N/CN hydratase. RICHEPTO; IPR003101; Ntlse/CNhydtse. Pfam; PF00795; CN hydrolase; 1. RR PROSITE; PS50263; CN HYDROLASE; 1. RR PROSITE; PS50261; NITRIL_CHT_2; 1. 05-JUL-2004 (TrEMBLrel. 05-JUL-2004 (TrEMBLrel. 05-JUL-2004 (TrEMBLrel. 05-JUL-2004 (TrEMBLrel. Nitrilase (EC 3.5.5.7). SEQUENCE NUCLEOTIDE SEQUENCE. unclassified; uncultured organism. ORFNames=BD5086; Q6RWK5; Q6RWK5_9ZZZZ PRELIMINARY; ŏ : 346 environmental AA, 4.47e-100 1806.00 100.0% 100.0% 100.0% 96.0% 37432 MW; 27, 27, 27, samples Last sequence update) Last annotation update) Created) 12FE01C35AD463CE Length: Matches: Conservative: Mismatches: Indels: Gaps: ₿ carbon-nitrog. . .; IEA IEA. 346 0 0 0

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RA Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

ARA Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

ARA McChi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,

RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,

Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective catalysis.";

Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective catalysis.";

Appl. Environ. Microbiol. 70:2429-2436(2004).

REMBL; AV487438; AAR97385.1; -; Genomic DNA.

BCO; GO:0018762; F:saliphatic nitrilase activity; IEA.

GO; GO:0018762; F:saliphatic nitrilase activity. IEA.

GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. ..; IEA.

GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. ..; IEA.

GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. ..; IEA.

GO; GO:0016810; F:hydrolase activity.

GO; GO:0016810; F:hydrolase.

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QGRWR4;
05-JUL-2004 (TrEMBLrel. 2
05-JUL-2004 (TrEMBLrel. 2
05-JUL-2004 (TrEMBLrel. 2
Nitrilase (EC 3.5.5.7).
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uncultured organism.
unclassified; enviro
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RESULT
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AX PubMed=1006684; DOI=10.1128/AEM.70.4.2429-2436.2004;
AR Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
AR Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
AR Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
AR McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.
AR Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective catalysis
Appl. Environ. Microbiol. 70:2429-2436 (2004).

DR R. DE ENVIRON. Microbiol. 70:2429-2436 (2004).

DR R. DE ENVIRON. Microbiol. 70:2429-2436 (2004).

DR EMBL; AY487430; AAR97377.1; -; Genomic_DNA.
Appl. Environ. Microbiol. 70:2429-2436 (2004).

DR EMBL; AY487430; AAR97377.1; -; Genomic_DNA.
GO; GO:0018762; F:aliphatic nitrilase activity; IEA.
DR GO; GO:0018762; F:aliphatic nitrilase activity, acting on carbon-nitrog. . .

DR GO; GO:001807; P:nitrogen compound metabolism; IEA.

InterPro; IPR003010; Ntlsē/CNhydratase.

InterPro; IPR00312; N/CN hydratase.

InterPro; IPR00312; Ntlsē/CNhydtse.

InterPro; IPR003312; Ntlsē/CNhydtse.

InterPro; IPR003312; Ntlsē/CNhydtse.

DR PROSITE; PS00920; NtTRIL_CHT_2; UNKNOWN_1.

DR PROSITE; PS00921; NITRIL_CHT_2; UNKNOWN_1.
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QERWS2;

05-UUL-2004 (TrEMBLrel. 27)

05-UUL-2004 (TrEMBLrel. 27)

05-UUL-2004 (TrEMBLrel. 27)

Nitrilase (EC 3.5.5.7).
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unclassified; environmental
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PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.

McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Kelle

Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective cataly

Appl. Environ. Microbiol. 70:2429-2436 (2004).

EMBL; AY487552; AAR97499.1; -; Genomic_DNA.
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DT Nitrilase (EC 3.5.5.7).
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GN ORFWames=BD5217
OS uncultured organism.
OC unclassified; environmental so
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Conservative:
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van der Meer J.R.;
Submitted (DEC-2003) to the EMBL/GenBank/DDBJ databases Submitted (DEC-2003) to the EMBL/GenBank/DDBJ databases Submitted (CAE92892.1; -; Genomic DNA.
GO; GO:0016810; F:hydrolase activity, acting on carbon-1GO; GO:0006807; P:nitrogen compound metabolism; IEA.
InterPro; IPR000132; N/CN hydratase.
InterPro; IPR003010; Ntlse/CNhydtse.
Pfam; PF00795; CN_hydrolase; 1.
                                                                                                                                                                                                                        regulator for integrase expression of Pseudomonas sp. strain B13."; Mol. Microbiol. 49:93-104(2003).
[3]
NUCLEOTIDE SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                        STRAIN=strain RR21;
MEDLINE=99008981; PubMed=9791097;
MEDLINE=99008981; PubMed=9791097;
Ravatn R., Studer S., Zender A.J.B., van der Meer J.R.;
"Int-B13, an unusual site-specific recombinase of the bact
integrase family is responsible for chromosomal insertion
kb cl2-element of Pseudomonas sp. strain B13.";
J. Bacteriol. 180:5505-5514(1998).
                                                                                                        Gaillard M., Werlen C., van der Meer J.R.; Submitted (DEC-2003) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pseudomonas putida.
Bacteria; Proteobacteria; Gammaproteobacteria;
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05-JUL-2004 (TrEMBLrel. 27, Last sequence update)
05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
predicted amidohydrolase/nitrilase.
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PS00920; NITRIL_CHT_1;
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Ra Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
Ax Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
Ax McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
Ax Mathur E., Kretz P.L., Burk M.J., Short J.M.;
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|MetLysPheIleGlnAlaTyrHisAspAsnSerMetValIleAspGlyAlaGlnPheGlu
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PubMed-1506684; DOI=10.1128/AEM.70.4.2429-2436.2004;
R Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
A Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
A McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
A Mathur E., Kretz P.L., Burk M.J., Short J.M.;
"Exploring nitrilates sequence space for enantioselective catalysis.",
Appl. Environ. Microbiol. 70:2429-2436(2004).
L Appl. Environ. microbiol. 70:2429-2436(2004).
R EMBL; AY487559; AAR97506.1; -; Genomic DNA.
GO; GO:0018762; F:alliphatic nitrilates activity; IEA.
GO; GO:001872; F:hydrolase activity, acting on carbon-nitrog. ..; I
R GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. R GO; GO:0006807; P:nitrogen compound metabolism; IEA.
RR InterPro; IPR0033010; Ntlse/CNhydrae.
RR InterPro; IPR003010; Ntlse/CNhydrae.
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Nitrilase (EC 3.5.5.7).
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Pred. No.:
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PROSITE; PS50263; CN_HYDROLASE;
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PROSITE; PS00921; NITRIL_CHT_2;
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RA Robertson D.B., Chaplin J.A., DeSantis G., Podar M., Madden M.,
RA Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
RA Mathur B., Kretz P.L., Burk M.J., Short J.M.;
"Exploring nitrilase sequence space for enantioselective catalysis.";
RA Papl. Environ. Microbiol. 70:2429-2436(2004).
REMEL; Ar487463; AAR97410.1; -; Genomic DMA.
DR RMSL; Ar487463; AAR97410.1; -; Genomic DMA.
CO; GO:0016810; F:hydrolase activity, IEA.
GO; GO:0016872; F:aliphatic nitrilase activity; IEA.
GO; GO:0016872; F:nitrogen compound metabolism; IEA.
InterPro; IPR000132; N/CN_hydratase.
InterPro; IPR000132; N/CN_hydratase.
InterPro; IPR000132; N/CN_hydratase.
InterPro; IPR000132; N/CN_hydratase.
InterPro; IPR00310; Ntlse/CNhydtse.
PROSITE; PS00920; NITRIL CHT 1; 1.
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RESULT QGRWG6 ID WG GO DT 055 
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N NUCLEOTIDE SEQUENCE.

PNUCLEOTIDE SEQUENCE.

PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

EX PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

EX PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

EX PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004

EX Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,

EX McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,

EX Machur E., Kretz P.L., Burk M.J., Short J.M.;

EX "Exploring nitrilase sequence space for enantioselective catalysis.";

EX Appl. Environ. Microbiol. 70:2429-2436(2004).

EX Appl. Environ. Microbiol. 70:2429-2436(2004).

EX EMBL, ENVIRON. Microbiol. 70:2429-2436(2004).

EX EMBL, ENVIRON. Fishiphatic nitrilase activity; IEA.

EX GO; GO:0018762; F:aliphatic nitrilase activity; IEA.

EX GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. . .;

EX GO; GO:0006807; P:nitrogen compound metabolism; IEA.

EX DR GO; GO:0006807; P:nitrogen compound metabolism; IEA.

EX DR GO; GO:00132; N/CN_hydratase.
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unclassified; environmental
NCBI TaxID=155900;
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Q5-JUL-2004 (TrEMBLrel. 27, Created)
Q5-JUL-2004 (TrEMBLrel. 27, Last seq
Q5-JUL-2004 (TrEMBLrel. 27, Last ann
Mitrilase (EC 3.5.5.7).
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Pfam; PF00799; CN hydrolase; 1.
PROSITE; PS50263; CM HYDROLASE; 1.
PROSITE; PS00920; NITRIL_CHT_1; 1.
PROSITE; PS00921; NITRIL_CHT_2; 1.
SEQUENCE 338 AA; 36483 MW; B9EBI
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Raploring nitrilase sequence space for enantioselective catalysis.";

"Exploring nitrilase sequence space for enantioselective catalysis.";

Appl. Environ. Microbiol. 70:2429-2436(2004).

REMBL; Ay487546; AAR97493.1; -; Genomic DNA.

REMBL; Ay487546; Finitphatic nitrilase activity; IEA.

GO; GO:0018762; Finitphatic nitrilase activity; IEA.

GO; GO:0016810; Finydrolase activity, acting on carbon-nitrog. .; IEA.

RGO; GO:0006807; Finitrogen compound metabolism; IEA.

RGO; GO:0007807; Finitrogen compound metabolism; IEA.

RINTEPTO; IPR000132; N/CN_hydratase.

InterPro; IPR000132; N/CN_hydratase.

InterPro; IPR000132; N/CN_hydratase.

RROSITE; PS00920; NITRIL_CHT_1; 1.
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05-JUL-2004 (TrEMBLrel.
05-JUL-2004 (TrEMBLrel.
05-JUL-2004 (TrEMBLrel.
Nitrilase (EC 3.5.5.7).
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unclassified; environmental
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PubMed=15066841; DOI:10.1128/AEM.70.4.2429-2436.2004;
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PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

R Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

A Robertson D.E., Chaplin J.A., DieSantis G., Podar M., Mong K.,

A Mchi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,

A McQuald J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.

A Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective catalysis

I. Appl. Environ. Microbiol. 70:2429-2436(2004)

L. Appl. Environ. Microbiol. 70:2429-2436(2004)

R EMBL, AY487545; AAR97492.1; -; Genomic_DNA.

R GO; GO:0016810; F:bdtorolase activity, IEA.

GO; GO:0016810; F:bdtorolase activity, acting on carbon-nitrog.

R GO; GO:0016807; P:nitrogen compound metabolism; IEA.

R InterPro; IPR000132; N/CN_hydratase.
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05-JUL-2004 (TrEMBLrel.
05-JUL-2004 (TrEMBLrel.
05-JUL-2004 (TrEMBLrel.
Nitrilase (EC 3.5.5.7).
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                               ThrProAspLysPheGluLeuThrHisAlaGlyGlyGlyHisAlaIleIleTyrGlyPro
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P NUCLEOTIDE SEQUENCE.

C STRAIN=IFM 10152;

X PubMed=15466710; DOI=10.1073/pnas.0406410101;

X PubMed=15466710; DOI=10.1073/pnas.0406410101;

X PubMed=15466710; DOI=10.1073/pnas.0406410101;

A Ishikawa J., Yamashita A., Mikami Y., Hoshino Y., Kurita

R Ishikawa J., Yamashita A., Mikami Y., Hoshino Y., Kurita

A Shiba T., Hattori M.;

"The complete genomic sequence of Nocardia farcinica IFM

"The complete genomic sequence of Nocardia farcinica IFM

PROS. Natl. Acad. Sci. U.S.A. 101:14925-14930(2004).

R EMBL, AP006618; BAD58116.1; -; Genomic_DNA.

R GO; GO:0016810; F:hydrolase activity, acting on carbon-n

R GO; GO:0016810; F:hydrolase activity, acting on carbon-n

R GO; GO:0016810; F:hydrolase activity, acting on carbon-n

R GO; GO:0016810; F:hydrolase (Chhydtse.

InterPro; IPR003132; N/CN_hydratase.

InterPro; IPR002332; PII GlnB UMP_S.

R PIGHT; PS002332; PII GlnB UMP_S.

R PROSITE; PS00233; NTRIL CHT_1; 1.

R PROSITE; PS0025; NTRIL CHT_2; 1.

R PROSITE; PS00496; PII_GLNB_UMP; UNKNOWN_1.
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Nocardia farcinica.
Bacteria; Actinobacteridae;
Corynebacterineae; Nocardiaceae; Nocardia.
NCBI TaxID=37329;
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LeuGlnProLeuThrLysTyrAlaMetTyrSerGlnHisGluGlnIleHisValAlaAla 186
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-DB-A Geneseq -QFMT=fastan -SUFFIX=rag -MINMATCH=0.1 -LĀOPCL=0
-UNITG=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS-human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALICN=15 -MODES-LOCAL
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-NO_MMAP -NEG SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG -DEV_TIMEOUT=120
-NAEN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6 -FGAPEXT=7
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ALIGNMENTS

RESULT 1
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XX W-PE 29-DEC-1999; 99US-0173609P. 07-DEC-2000; 2000US-0254414P. Nitrilase; enantiomer; alpha-substituted carboxylic acid; stereoselective; hydrolysis; amino nitrile; cyanohydrin. Nitrilase protein #1. AAE05488; AAE05488 standard; protein; 346 AA. Madden M, 29-DEC-2000; 2000WO-US035555. 05-JUL-2001. WO200148175-A2 Unidentified. 25-SEP-2001 (DIVE-) DIVERSA CORP. MADDEN D. Weiner DP, (first entry) Chaplin JA;

Producing alpha-substituted carboxylic acid enantiomers by contacting

N-PSDB; AAD11166. WPI; 2001-465211/50

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and hydrolyzing
Nitrilase.
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                                                                                                                                                                                                              enzyme; nitrilase; nitrile; cyanohyrdin;
enantiomer; chiral medicine.
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This invention relates to nitrilases and the nucleic acids that encothese enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids a ammonia. Nitrilases have commercial utility as biocatalysts for use the synthesis of enantiomeerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the develop

Novel nitrilase polypeptide, useful for making 3-hydroxybutyric acid or (R)- or (S)-mandelic a lactic acid derivative and for producing pharma food additive.

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This polypeptide is a protein sequence that exhibits nitrilase activity of the invention.
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                                                                          This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a nitrilase protein which may be used in the method of the
                                                                                                                                                                                                                                                                                                                                                                                                            Monitoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted cyanide or a reactant that generates a cyanide or a material that converted to cyanide.
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     Sequence 346
                                                                                                                                                                                                                                                                                                                                                              Claim
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N-PSDB; ADH36217.
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Length:
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Indels: Gaps:

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This invention is related to a novel isolated or recombinant nucleic acid encoding a protein having nitrilase activity. Nitrilase's are capable of converting nitrile's directly to carboxylic acids and have great potential for use in industrial chemical processes. The isolated nitrilase proteins of the invention have increased activity and stability at increased pH and temperature when compared to those conventionally used. In addition, the nucleic acid of the invention is useful for screening enantioselective transformation. The present sequence is that of a nitrilase enzyme of the invention.
                                                                                                                                                                                                                                                                                                        New isolated or recombinant nucleic acid nitrilase activity, useful for screening
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09-SEP-2002; 2002US-00241742.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 41; SEQ ID NO 384; 253pp;
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28-JUN-2002; 2002US-0392944P.
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The present invention relates to a method for preparating an atorvastatin clintermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate (R)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting cepichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric converting 4-cyano-3-hydroxybutyric converting 4-cyano-3-hydro

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Matches:
Conservative:
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GECGCCCGGCTTGGGGCATGCGCTTCCTCCAGCGCTATTTCGAGAATTCGCTCGTGCGC

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(R)-ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis; carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile moiety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S)-ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-mandelic acid; (S)-phenyl lactic acid derivative;
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Best Local Similarity:
Query Match:
DB:

US-09-751-299-1 (1-1041) x ADI64637 (1-346)

Gaps:

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Alignment
Pred. No.:
Score:
                                                                                                                The invention describes an isolated or recombinant polypeptide (I) comprising amino acids having a sequence at least 50 % identical to a sequence (S1) available in electronic form (RC) from the following web site ftp.seqdata.uspto.gov/sequence.html?DocID=2004014195, or its cvariants, having one or more mutations at residue 55 Lys, Gly or Glu, at residue 60 glutamic acid, at residue 111 Ser, their combinations or fragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3-hydroxybutyric acid; hydrolysing a nitrile to a carboxylic acid; hydrolysing a nitrile to a carboxylic acid; hydroxy acid molecule or a chiral amino acid molecule; producing an apha-hydroxy acid molecule or a chiral alpha-hydroxy acid molecule or a chiral alpha-hydroxy anandelic acid; producing (S)-phenyl lactic acid; producing an acid crivative or an (R)-phenyl lactic acid derivative; modifying a molecule; and for identifying a modified compound. The inventive method is useful for monitoring or determining % enantiomeric excess or % diasteromeric excess (I) is useful in the production of food additives and drug invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29-DEC-1999; 99US-0173609P.
07-DEC-2000; 2000US-00751299;
28-DEC-2000; 2000US-00751299;
21-JUN-2001; 2001US-0300189P.
30-JUL-2001; 2001US-0309006P.
22-JAN-2002; 2002US-0351336P.
15-MAY-2002; 2002US-00241742.
                                                                       No.:
                                                                                                                                                                                                                                                                                                                                                                                                                      Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                Novel isolated or recombinant polypeptide useful in production of food additives.
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% diasteromeric excess; food additive; drug intern
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enzyme; nitrilase; nitrile; cyanohyrdin;
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                                                      (first entry)
                                                                                                             protein;
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 ammonia; biocatalyst;
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21-JUN-2001; 2001US-0300189P
30-JUL-2001; 2001US-0309006P
22-JAN-2002; 2002US-0351336P
                                                                                                   WPI; 2003-201417/19
                                                                                                               Madden
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                                                                                                                                                                                     enantiomer; chiral medicine
                                                                                                                        (DIVE-) DIVERSA CORP. (MADD/) MADDEN D.
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                                                                                                           Desantis
Burk M;
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                                                                                                                Chaplin
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                                                                                                                Milan
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Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and food additive.

Claim 40; SEQ ID NO 34; 560pp; English.

This invention relates to nitrilases and the nucleic acids that encode these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved acitivity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This polypeptide is a protein sequence that exhibits nitrilase activity of the invention.

Sequence 341 ž

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Best Local S
Query Match:
              Percent Similarity:
Best Local Similarity:
 1.08e-118
1464.00
90.1%
81.7%
77.8%
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ADH35688 ADH3688 ADH3688 ADH3688 ADH368 ADH3 AC ADH3 AC ADH3 AC Chem XX Chem XX Chem XX Unid X
  15-MAY-2002;
                                                                                                                                                                                                                                                              chemical process monitoring; biochemical process monitoring; cyanide; high throughput system; enzyme.
                                                     15-MAY-2003;
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This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a nitrilase protein which may be used in the method of the
                                                                                                                                                                                                                                    Monitoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted to cyanide or a reactant that generates a cyanide or a material that can converted to cyanide.
                                                                                                                                                                                                      Claim 73; SEQ ID NO 34; 277pp;
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Sequence 341 AA;

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GCGCTCTGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGACGAC
                                                                          GluGlyGluLeuIleAlaAlaArgArgLysLeuLysProThrHisAlaGluArgThrVal
                                                                                         GATGGCGATCTGATCGCCGCCGCCGCCGAAGCCTCAAGCCTACCCATGCGGAGCGCACCGTG
                                                                                                                    ValGlyPheSerGluArgAlaGlyGlySerLeuTyrMetGlyGlnAlaIlePheGlyPro
                                                                                                                               GCCGGCTATAGCGAGCGCGCGGGGGGGGGAGCCTCTATATGGGCCAGGCGATCTTCGGCCCC
                                                                                                                                                           GlySerLysGlnTrpAsnAlaIleAlaAspAlaAlaArgArgHisArgMetThrValVal
                                                                                                                                                                              GTGCGCCTGATCGCATTCCCAGAGACTTGGATTCCCGGCTATCCCTTTTGGATATGGCTG
                                                                                                                                                                                                                                                                                                                                    PheGlyGluGlyAspGlySerHisLeuAlaValTyrGluThrGlyValGlyArgIleGly
                                               TTCGGCGAGGAGACCGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGC
                                                                                                                                                                                                                            egcgcgcccccccrargcgccrargcgccrargcgcacaarrcgcrcgrcgcgc
                                                                                                                                                                                                                                                                                          AspLeuAspArgThrValGluLysThrIleAlaIleIleGluGlnAlaAlaGluGlnAsp
                                                                                                                                                                                                                                                                                                                GATCTCGACCGCACAGTCGAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCAAGCAGGAC
                                                                                                                                                                                                                                                ValArgLeuIleAlaPheProGluThrTrpIleProGlyTyrProLeuTrpIleTrpLeu
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RESULT 9
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This invention is related to a novel isolated or recombinant nucleic acid encoding a protein having nitrilase activity. Nitrilase's are capable of converting nitrile's directly to carboxylic acids and have great
                                                                                                                                          New isolated or recombinant nucleic acid encoding a polypeptide having nitrilase activity, useful for screening enantioselective transformation
                                                                                                                                                                                                                                                                                                                                                                                   15-MAY-2002; 2002US-00146772.
09-SEP-2002; 2002US-00241742.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nitrilase; nitrile; carboxylic acid; chemical enantioselective transformation; enzyme.
                                                                                                Claim 44;
                                                                                                                                                                                                                                                                                          Desantis G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-MAY-2003; 2003WO-US015712.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nitrilase enzyme amino acid sequence SeqID34.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11-MAR-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADG93569;
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                                                                                                                                                                                                                                                                                                                                       (DIVE-) DIVERSA CORP.
                                                                                                                                                                                                                                             2004-090637/09.
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                                                                                                                                                                                                                       ADG93568.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspValThrArgLeuLeuAsnProArgProAlaAlaArgValGluAlaLeuGlyPro 320
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                                                                                              SEQ ID NO 34; 295pp; English.
                                                                                                                                                                                                                                                                                             Short JM,
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                                                                                                                                                                                                                                                                                          Chatman
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CC potential for use in industrial chemical processes. The isolated CC nitrilase proteins of the invention have increased activity and stability CC at increased pH and temperature when compared to those conventionally CC used. In addition, the nucleic acid of the invention is useful for CC screening enantioselective transformation. The present sequence is that CC of a nitrilase enzyme of the invention.

SS Sequence 341 AA;
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Alignment Scores:

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      Pred. No.:
      1.08e-118
      Length:
      341

      Score:
      1464.00
      Matches:
      272

      Percent Similarity:
      90.1%
      Conservative:
      28

      Best Local Similarity:
      81.7%
      Mismatches:
      33

      Query Match:
      77.8%
      Indels:
      0

      DB:
      6
      Gaps:
      0
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US-09-751-299-1 (1-1041) x ADG93569 (1-341)

TCGAC 840	CGCGCCTGGCCGAGGCCGCTCCCGGAGACCGAAGAGGGGACTGCTGGTCGCCGATATCGAC	781	Ş
spGly 260	AspLysGluProLeuLeuAlaGlyGlyGlyPheSerMetIlePheGlyProAspGly	241	망
ACGGC 780	GACAAGGAGATGTTCCTCAAGGCCGGCGGTTTTTGCCATGATTTTTCGGGCCCG	721	ş
hrPro 240	ValLeuAlaSerCysLeuValValThrProGluIleLeuLysValLeuIleAspTh	221	В
CGCCC 720	GIGCTGGCGTCGTGCGCGACCGTTTCGCCGGAGATGATCAAGGTATTGGTGGATACGCCC	661	Ş
ysTyr 220	LeuGlyProGluValAsnThrAlaAlaSerGlnValTyrAlaValGluGlyGlyC	201	망
GCTAC 660	CTCGGACCGGAGGTCAATACCGCCGCAAGCCAGATCTACGCGGTCGAGGGCGGCTC	601	Ş
yrAla 200	GluGlnValHisValAlaSerTrpProCysPheSerLeuTyrArgGlyMetAlaTy	181	뮹
ATGCG 600	GAACAGGTCCACGTCGCGTCGTGGCCGAGCTTCAGCCTCTATCGCCGGCATGGCCTI	541	Ş
laAsn 180	AlaLeuCysCysTrpGluHisIleGlnProLeuSerLysTyrAlaMetTyrAlaA	161	망
CCGAC 540	GCGCTCTGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGAC	481	Ş
leGly 160	PheGlyGluGlyAspGlySerHisLeuAlaValTyrGluThrGlyValGlyArgI	141	망
TCGGC 480	TTCGGCGAGGGAGACACCATCTCGCGGTGCACGATACCGCCATCGGGCGCTCGGC	421	Ş
hrVal 140	GluGlyGluLeuIleAlaAlaArgArgLysLeuLysProThrHisAlaGluArgTl	121	Дb
CCGTG 420	361 GATGGCGATCTGATCGCCGCGCGCGCAAGCTCAAGCCTAACCCTACCCATGCGGAGCGCACCGTG 420	361	Ş
lyPro 120	ValGlyPheSerGluArgAlaGlyGlySerLeuTyrMetGlyGlnAlaIlePheG	101	망
GCCCC 360	GCCGGCTATAGCGAGCGCGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGC	301	Q
alval 100	GlySerLysGlnTrpAsnAlaIleAlaAspAlaAlaArgArgHisArgMetThrV	81	뮍
TCGTG 300	GGCAGCAAGCAGTGGCAGGCCCTGGCGGATGCGGCCCGCCGCCACGGCATGCAT	241	Ş
alarg 80	GlySerProAlaTrpGlyMetArgPheValGlnArgTyrPheGluAsnSerLeuV	61	Дb
TGCGC 240	GGCGCGGCTTTGGGGCATTCGTTCCAGCGCTATTTCGAGAATTCGCTCGT	181	Ş
rpLeu 60	41 ValArgLeuIleAlaPheProGluThrTrpIleProGlyTyrProLeuTrpIleTrpLeu 60	41	рb
GGCTG 180	GTGCGCCTGATCGCATTCCCAGAGACTTGGATTCCCCGGCTATCCCTTTTGGATATC	121	δ
lnAsp 40	AspLeuAspArgThrValGluLysThrIleAlaIleIleGluGlnAlaAlaGluG	21	뮹
AGGAC 120	GATCTCGACCGCACAGTCGAGAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCCAAGCA	61	Ş
heLeu 20		1	망
TCCTC 60	ATGTCGGAGCCCATGACGAAGTATCGCGGGCGGCGGCGGTGCAGGCCGCCGGTGTT	1	Ş

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ARESULT 10
ADI62166
ID ADI62166
ID ADI62266
AC ADI62
XX AC ADI62
XX Nitr:
XX Nitr:
XX Ator
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                                                                       The present invention relates to a method for preparating an atorvastatin intermediate known as (R)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid with a polypeptide having nitrilase activity, converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters. Atorvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia. The present sequence represents a nitrilase polypeptide obtained from an
                                                          sequence represents a environmental sample.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglutaronitrile by polypeptide with nitrilase activity, converting hydroxyglutaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Atorvastatin; (R)-ethyl 4-cyano-3-hydroxybutyrate; (R)-ethyl 4-cyano-3-hydroxybutyric acid; epichlorohydrin; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 4-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric acid; mixed hyperlipidaemia; homozygous familial hypercholesterolaemia; antilipaemic; enzyme.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13-JUN-2002; 2002US-0389317P.
28-JUN-2002; 2002US-0392944P.
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                                                                                                                                         GTGCTGGCGTCGTGCGCGACCGTTTCGCCGGAGATGATCAAGGTATTGGTGGATACGCCC
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07-DEC-2000; 2000US-00751299;
28-DEC-2000; 2000US-00751299.
21-JUN-2001; 2001US-0300189P.
30-JUL-2001; 2001US-0309066P.
22-JAN-2002; 2002US-00146772.
09-SEP-2002; 2002US-00241742.
                                                             hydrolysing cyanohydrin molety or an aminonitrile molety; producing a chiral alpha-hydroxy acid molecule or a chiral amino acid molecule; producing an (S)-ethyl 4-cyano-3-hydroxybutyric acid; producing an (R)-mandelic acid or (S)-mandelic acid; producing (S)-phenyl lactic acid derivative or an (R)-phenyl lactic acid derivative; modifying a molecule; and for identifying a modified compound. The inventive method is useful for monitoring or determining % enantiomeric excess or % diasteromeric excess. (I) is useful in the production of food additives and drug intermediates. This is the amino acid sequence of a nitrilase of the
                                                                                                                                                                                                                                                  The invention describes an isolated or recombinant polypeptide (I) comprising amino acids having a sequence at least 50 % identical to a sequence (S1) available in electronic form (BC) from the following web site ftp.seqdata.uspto.gov/sequence.html?DocID=2004014195, or its variants, having one or more mutations at residue 55 Lys, Gly or Glu, a residue 60 glutamic acid, at residue 111 Ser, their combinations or fragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3-hydroxybutyric acid; hydrolysing a nitrile to a carboxylic acid;
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                                                                                                                                                                                                                                                                                     This invention relates to nitrilases and the nucleic acids that encode these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This polypeptide is a protein sequence that exhibits nitrilase activity of the invention.
                                                                                                                                                                                                                                                    Sequence 348
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                                                                                                                                                                         No.:
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22-JAN-2002; 2002US-0351336P
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 348 AA;
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                                     enantioselective transformation;
                                                         nitrilase; nitrile; carboxylic acid; chemical
                                                                                          Nitrilase enzyme amino acid sequence SeqID16.
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                                                                                                                                                                                                                  ADG93551 standard;
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09-SEP-2002;
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                                                                                                                     GACCGCACAGTCGAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCAAGCAGGACGTGCGC
GAGGGAGACGGCAGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGCGCGCTC
                  GATCTGATCGCCGCGCGCCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTGTTCGGC
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                                                                                                                                                                                                                                     Nitrilase polypeptide #8.
                                                                                                                                                                                                                                                             22-APR-2004
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                                                                   13-JUN-2003; 2003WO-US018840
                                                                                                                                    Unidentified
                                                                                                                                                          antilipaemic;
                                  13-JUN-2002; 2002US-0389317P.
28-JUN-2002; 2002US-0392944P.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The present invention relates to a method for preparating an atorvastatin intermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate) (R)-ethyl 4-cyano-3-hydroxybutyrate acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic convergion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid, with a polypeptide having nitrilase activity, caid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes using a variety of parameters.

Characteristic is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia, mixed dyslipidaemia and homozygous familial hypercholesterolaemia. The present sequence represents a nitrilase polypeptide obtained from an environmental sample.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglutaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 348
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                       GluThrIlePheThrArgArgLysLeuLysProThrHisValGluArgThrValPheGly
                                                                                                             GATCTGATCGCCGCGCGCCCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTGTTCGGC
                                                                                                                                      GluGlnAlaLysArgMetAsnGlnAlaAlaAlaAsnAsnLysIleTyrValValMetGly
                                                                                                                                                                                                                         ProAlaTrpGlyMetArgPheValGlnArgTyrPheAspAsnSerLeuMetLeuGlySer
                                                                                                                                                                                                                                                                    CCGGCTTGGGGCATGCGCTTCGTCCAGCGCTATTTCGAGAATTCGCTCGTGCGCGGCAGC
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TGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGACGAACAG
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Matches:
Conservative:
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	1 LysAlaAla 343	b 341
	7 GCCGCCGCG 1035	y 1027
lnGln 340	2 GlyProThrGluSerLeuLysAspMetGlyLysMetGlnMetGluAlaGluGlnGln 340)b 322
GCGCC 1026	7 GAACCGCAAAACGAGGACAAGGGCGACGCCCCGCGCTGCGCGTGGTGGCGGAAAGCGCC	<i>y</i> 967
laSer 321	2 ThrArgLeuLeuPheAsnSerAlaProAlaAsnArgValGluTyrIleAsnProAlaSer	ახ 302
CATTC 966		y 907
spval 301)b 282
ACGTA 906	7 ATGATCGCGTTGGCCAAGGCGGCCGGCCGATCCGGCCGGC	ly 847
euGly 281	2 LeuAlaLysProLeuProGluAsnGluGluGlyLeuLeuTyrAlaAspIleAspLeuGly)b 262
TCGGC 846)y 787
rgPro 261)b 242
GCGCC 786		ly 727
rgLys 241)b 222
ACAAG 726		<i>y</i> 667
alLeu 221	:::)b 202
TGCTG 666		<i>ly</i> 607
euGly 201	IleHiBlleAlaSerTrpProSerPheSerLeuTyrArgGlyAlaAlaTyrAlaLeuGly)b 182
TCGGA 606)y 547
 uGln 181	:::)b 162

Search completed: April 27, Job time : 181.007 secs 2006, 01:18:36

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Command line parameters:

-MODEL-frame+ n2p.model -DEV=xlp
-Q-|abss/ABSSWEB spool/US09751299/runat 26042006 090039 18719/app query.fasta_1
-Q=|abss/ABSSWEB spool/US09751299/runat 26042006 090039 18719/app query.fasta_1
-DB=Issued Patents AA -OPMT=fastan -SUFFIX=rai -MINNATCH=0.1 -LOOPCL=0
-LOOPEXT=0 -UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi
-LIST=45 -DCCALIGN=200 -THR SCORE=pct -THR MAX=100 -THR MIN=0 -ALIGN=15
-MODE=LOCAL -OUTFMT=pto -NORM=sext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=20000000000
-HOST=abss02p -USER=US09751299 @CGN 1 1 101 @runat 26042006 090039 18719
-NCPU=6 -ICPU=3 -NO MMAP -NEG SCORES=0 -WAIT - NSAPOP=10 -XGAPOP=6
-DEV TIMEOUT=120 -WARN TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPOEXT=0.5 -FGAPOP=6
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Maximum Match 100%
Listing first 45 summaries
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re greater than or equal to the score of the result being printed,
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2: /cgn2_6/ptodata/1/iaa/6_COMB.pep:*
3: /cgn2_6/ptodata/1/iaa/H_COMB.pep:*
4: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
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US-09-823-373-5
US-09-823-373-14
US-08-447-702-5
US-08-447-702-5
US-09-252-991A-18296
US-09-252-991A-31713
US-09-252-991A-31713
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Sequence 18296, A
Sequence 317134, A
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ALIGNMENTS

RESULT 1

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US-08-690-493-1
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Patent No. 5872000
GENERAL INFORMATION:
                                                                                        APPLICATION NUMBER: US/08/690,493
FILING DATE: 31 JUL-1996
PRIOR APPLICATION DATA: JP 213061/1995
APPLICATION NUMBER: JP 213061/1995
FILING DATE: 31-JUL-1995
ATTORNEY/AGENT INFORMATION:
NAME: DAVIDSON, Clifford M
REGISTRATION NUMBER: 32,728
REFERENCE/DOCKST NUMBER: 3821005
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 768-3800
TELEFAX: (212) 382-2124
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 344 amino acid re:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Yu, Fujio
TITLE OF INVENTION: NO.
NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: MS-DOS Editor
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: U.S.A.
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              344 amino acid residues
                                                                          (212) 768-38
(212) 382-2124
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; OTHER INFORMATION: Xaa is Met or a US-08-690-493-1
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TOPOLOGY: linear
MOLECULE TYPE: prote
ORIGINAL SOURCE:
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STRAIN: MA-1
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                                                            GTTTCGCCGGAGATGATCAAGGTATTGGTGGATACGCCCGACAAGGAGATGTTCCTCAAG
                                                                                                                         TrpProSerPheSerIlePheProGlyAlaValTyrAlaLeuGlyProGluValAsnThr
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Matches:
Conservative:
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APPLICANT: Ress-Loeschke, Marion
APPLICANT: Friedrich, Thomas
APPLICANT: Hauer, Bernhard
APPLICANT: Hauer, Bernhard
APPLICANT: Hauer, Bernhard
TITLE OF INVENTION: A process for preparing chiral carboxylic acids
TITLE OF INVENTION: A process for preparing chiral seor microorganisms
TITLE OF INVENTION: which comprise a gene for the nitrilase
FILE REFERENCE: 49462
CURRENT APPLICATION NUMBER: US/09/806,876A
CURRENT FILING DATE: 2001-05-21
PRIOR APPLICATION NUMBER: Germany/19848129.2
PRIOR APPLICATION NUMBER: Germany/19848129.2
PRIOR APPLICATION SEO ID NOS: 9
SOPTWARE: WordPerfect version 6.1
SEQ ID NO 2
LENGTH: 356
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APPLICANT: DiCosimo, Robert
APPLICANT: DiCosimo, Robert
APPLICANT: DiCosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of TITLE OF INVENTION: Isolation and Expression of TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR TILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
SEQ ID NO 5
LENGTH: 369
TYPE: PRT
ORGANISM: Acidovorax facilis
US-09-823-373-5
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US-09-823-373-5
 Alignment Scores:
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Best Local Similarity:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; ORGANISM: Acidovorax facilis US-09-823-373-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: Microsoft Office 97
SEQ ID NO 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of a Gene for Nitrilase from
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
CONTRIBER OF SEQ ID NOS: 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Chauhan, Sarita
APPLICANT: DiCosimo, Robe:
APPLICANT: Payne, Mark
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TYPE: PRT
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                 GlyThrAspPheLeuThrHisAspPheAlaPheGlyArgValGlyGlyLeuAsnCysTrp
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6870038
                                                 GGCAGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGCGCGCTCTGTTGCTGG
                                                                                                                                                                                                                                                                                    SerLeuSerPheThrSerArgTyrHisGluAsnSerLeuGluLeuGlyAspAspArgMet
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Indels:
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APPLICANT: Crouzet, J
FITLE OF INVENTION: F
TITLE OF INVENTION: 1
TITLE OF INVENTION: 1
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US-08-447-702-5
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                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
                                                                                            ZIP: 22313-1404
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC COMPUTER: DOS PC-DOS/MS-DOS
COPERATING SYSTEM: PC-DOS/MS-DOS
                                                              SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/01
FILING DATE: 23-MAY-1995
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                               STATE: V
                                                                                                                                                                                                                 ADDRESSEE: BURNS
STREET: P.O. Box
CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1027 GCCGCCGCG 1035
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P.O. Box 1404
                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                 Crouzet, Joel
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Levy-Schil, Sophie
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eaud, Edith
                                                                                                                                                                                                                                                                                   Expression Cassettes and Host Microorganisms Enabling to be Obtained, and Method of Converting Nitriles to C lates by Means of Said Polypeptides
                                                                                                                                                                                                                                                                                                                                                                 Polypeptides Possessing A Nitrilase
Activity, DNA Sequence Coding for Said Polypeptides,
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                                                 US/08/447,702
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INFORMATION FOR SEQ ID NO: 5:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: MCGOWAN, MALCOLM K.
REGISTRATION NUMBER: 39,300
REFERENCE/DOCKET NUMBER: 00:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 703.836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 10-FEB-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: FR 9
FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
ANAME: MAGGINET INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH:
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CysAlaSerThrAsnAlaMetHisGlnIleIleSerGlnPheTyrAlaIleSerAsnGln
                            TATGCGCTCGGACCGGAGGTCAATACCGCCGCAAGCCAGATCTACGCGGTCGAGGGCGGC
                                                                                                                                                       GAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGACGAACAGGTCCACGTC
                                                                                                                                                                                   GlySerMetAlaProvalPheLysThrGluTyrGlyAsnLeuGlyGlyLeuGlnCysTrp
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                                                         AlaSerTrpProAlaPheValProLysGlyAlaValSerSerArgValSerSerSerVal
                                                                                          GCGTCGTGGCCGAGCTTC---------AGCCTCTATCGCGGCATGGCC
                                                                                                                        GluHisAlaLeuProLeuAsnIleAlaAlaMetGlySerLeuAsnGluGlnValHisVal
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Matches:
Conservative:
Mismatches:
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Gaps:
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REFERENCE/DOCKET NUMBER: 36,113
REFERENCE/DOCKET NUMBER: 00302!
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 836-6620
TELEFAX: (703) 836-2021
INFORMATION FOR SEQ ID NO: 5:
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Patent No. 5635391
                                                                                                                               APPLICATION NUMBER: US 08/1
FILING DATE: 10-FEB-1994
APPLICATION NUMBER: FR 9209
FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
NAME: CTane-Feury, Sharon E
REGISTRATION NUMBER: 36,113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Flopyy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                              FILING DATE:
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            COUNTRY: United
ZIP: 22313-1404
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STATE: Virginia
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Virginia
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                United States
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EAUD, Edith
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ACTIVITY, DNA SEQUENCE CODING FOR SAID POLYPEPTIDES,
EXPRESSION CASSETTES AND HOST MICROORGANISMS ENABLING
TO BE OBTAINED, AND METHOD OF CONVERTING NITRILES TO
CARBOXYLATES BY MEANS OF SAID POLYPEPTIDE
                                                                                                                                                                                                             FR 9209882
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Percent Similarity:
Best Local Similarity:
Query Match:
DB:
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; LENGTH: 354 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-465-615-5
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             265 ThrGlyGluIleLeuAlaSer---IleProGlnAspAlaGluGlyIleAlaValAlaGlu
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                                        GACGGCCGCGCCCTGGCCGAGCCGCTCCCGGAGACCGAAGAGGGGACTGCTGGTCGCCGAT 834
                                                                    AspGluPheSerLysAsnPheLeuProLeuGlySerGlyAsnThrAlaIleIleSerAsn
                                                                                              ACGCCCGACAAGGAGATGTTCCTCAAGGCCGGCGGCGGTTTTGCCCATGATTTTCGGGCCC
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ValTyrValIleMetSerThrAsnLeuValGlyGlnAspMetIleAspMetIleGlyLys
                                                                                                                                                   TGCTACGTGCTGGCGTGCGCGACCGTTTCGCCGGAGATGATCAAGGTATTGGTGGAT
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592.50
54.0%
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Matches:
Conservative:
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Patent No. 6551795

GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS

FILE REFERENCE: 107196.136

CURRENT APPLICATION NUMBER: US/09/252,991A

CURRENT FILING DATE: 1999-02-18

PRIOR APPLICATION NUMBER: US 60/074,788

PRIOR APPLICATION NUMBER: US 60/074,788

PRIOR APPLICATION NUMBER: US 60/094,190

PRIOR FILING DATE: 1998-02-18

PRIOR FILING DATE: 1998-07-27

NUMBER OF SEQ ID NOS: 33142

SEQ ID NO 26099

LENGTH: 863

TYPE: PRT
ORGANISM: Pseudomonas aeruginosa
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Best Local Similarity:
Query Match:
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US-09-252-991A-26099
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345
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                          ArgArgGlyArgArgSerArgLeuProAlaAlaAspArgHisGlyAlaAlaLeuGlyPro
                                           CAGCAAGCAGTGGCAGGCCCTGGCGGA-----TGC-----GGCCCGCCGCCA
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255.50
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Matches:
Conservative:
Mismatches:
Indels:
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RESULT 8
US-09-252-991A-18296
; Sequence 18296, Application
; Patent No. 6551795
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                                                                                         GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AND ACID SEQUENCES RELATING
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
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PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 18296
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ORGANISM: Pseudomonas
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TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS

TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS

FILE REFERENCE: 107196.136

CURRENT APPLICATION NUMBER: US/09/252,991A

CURRENT FILING DATE: 1999-02-18

PRIOR APPLICATION NUMBER: US 60/074,788

PRIOR FILING DATE: 1998-02-18

PRIOR FILING DATE: 1998-07-27

NUMBER OF SEQ ID NOS: 33142

SEQ ID NO 31734

LENGTH: 419

TYPE: PRT

ORGANISM: Pseudomonas aeruginosa
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GENERAL INFORMATION:
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APPLICANT: Marc J. Rubenfield et al.
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 31715
LENGTH: 724
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; Sequence 23569, Application
; Patent No. 6551795
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GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
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; PRIOR APPLICATION NUMBER: US 60/074,788; PRIOR FILING DATE: 1998-02-18; PRIOR APPLICATION NUMBER: US 60/094,190; PRIOR FILING DATE: 1998-07-27; NUMBER OF SEQ ID NOS: 33142; SEQ ID NO 23569; LENGTH: 757; TYPE: PRT
; ORGANISM: Pseudomonas aeruginosa
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                                                                                                                                            Pred. No.:
                                                                                                                                                                      Alignment Scores:
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SEQ ID NO 25394
LENGTH: 369
TYPE: PRT
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GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: ARRUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
PRIOR FILING DATE: 1998-07-27
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PRIOR FILING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 22486
LENGTH: 344
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APPLICANT: Marc J. Rubenfield et al.
APPLICANT: MARC J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING
TITLE OF INVENTION: ABRUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT APPLICATION UNMERR: US/09/252,991A
CURRENT FILING DATE: 1399-02-18
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                                           ACCTGTTCGTCGGCGGCGTACATGGCGTATTTCGACAATGGCTGGATGTGCTCCCAGCAA 489
                                                                                                             GGTCCGAGCGCATAGGCCCATGCCGATAGAGGCTGAAGCTCGGCCACGACGCGACGTGG
                                                                                                                                                                   aArgArgProSerAlaArgProGlyProAlaArgArgGly-----
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CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILLING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILLING DATE: 1998-02-18
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILLING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 24567
PRIOR FILLING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
                                                                                                                              US-09-751-299-1 (1-1041) x US-09-252-991A-24567 (1-681)
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Best Local Similarity:
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US-09-252-991A-24567
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TITLE OF INVENTION:
TITLE OF INVENTION:
FILE REFERENCE: 1071
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GENERAL INFORMATION:
APPLICANT: Marc J. Rubenfield et al.
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Qy 820 GTCCCTCTTCGGTCTCCGGGAGCGGCTCGGGCCAAAATCA :::	Qy 841 GGTCGA	877 336	Qy 892	Qy 949 TGACGACGCGTTGGGCCGGACGTCGATCCAGCAGCAGCCGCGTTACGTCGGGCCGTG	Qy 1009 CGCGCAGCGGGGCGCGTTCGCCCTTGTCCTCGTTTTGCGGTTCGAATGCGGCATCAAGCG	gnment Scores: d. No.: re: 237.00 Matches: cent Similarity: t Local Similarity: 27.8% Mismatche ry Match: 28.6% Gags: Conservat Co	SULT 15 -09-252-991A-16655 Sequence 16655, Application US/09252991A Patent No. 6551795 GENERAL INFORMATION: NUCLEIC ACID AND AMINO ACID SECURITE OF INVENTION: NUCLEIC ACID AND AMINO ACID SECURITE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND FILE REFERENCE: 107196.136 CURRENT APPLICATION NUMBER: US/09/252,991A CURRENT FILING DATE: 1999-02-18 PRIOR APPLICATION NUMBER: US 60/074,788 PRIOR PILING DATE: 1998-02-18 PRIOR PILING DATE: 1998-07-27 NUMBER OF SEQ ID NOS: 33142 SEQ ID NO 16655 LENGTH: 977 TYPE: PRT ORGANISM: Pseudomonas aeruginosa -09-252-991A-16655	Qy 109 CCGCCTGGATCAGGCCGATCGCTTTCTCGACTGTGCGGTCGAGATCGAGAACACCCG Db 450 GlyProAlaThrSer	
GTCGGGCCCGAAAATCA 761 GlyLeu 411 CGTATCCA 710			878	893 rg 315	GAATGCGGCATCAAGCG 950 Db Db rgHisArgHisProGlu 299 Ov	Qy Qy	Db OUBNICES RELATING TO PSEUDOMONAS THERAPEUTICS THERAPEUTICS OU OU OU OU OU OU OU OU OU OU OU OU OU	458	hrHisArgProCysAsp 449 Qy

Search completed: April 27, 2006, 01:40:53
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-DB=Published Applications AA Main -QFMT=fastan -SUFFIX=rapbm -MINMATCH=0.1
-LOOPEXT=0 -UNITS=bits -START=1 -ENU=-1 -MATRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DOCALIGN=200 -THE SCORE=pct -THE MAX-100
-THR MIN=0 -ALIGN=15 -MODE=LOCAL -OUTFMT=pto -NORM=ext -HEAPSTZE=500 -MINLEN=0
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ALIGNMENT

RESULT 1 US-09-751-299-2

Sequence 2, Application US/09751299
Patent No. US20020012974A1
GENERAL INFORMATION:
APPLICANT: Madden, Mark
APPLICANT: Weiner, David P.
APPLICANT: Weiner, David P.
APPLICANT: Weiner, David P.
APPLICANT: Weiner, David P.
APPLICANT: Weiner, David P.
TITLE OF INVENTION: METHODS FOR PRODUCING ENANTIOMERICALLY PURE
TITLE OF INVENTION: ALPHA-SUBSTITUTED CARBOXYLIC ACIDS
FILE REFERENCE: DIVER1440-2
CURRENT FILING DATE: 2000-12-29
PRIOR APPLICATION NUMBER: 60/254,414
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: 60/173,609
PRIOR FILING DATE: 1999-12-29
INUMBER OF SEQ ID NOS: 4
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 2
LENGTH: 346
TYPE: PRT
ORGANISM: Unknown Organism
FEATURE:
OTHER INFORMATION: Description of Unknown Organism: Other Information: environmental sample
US-09-751-299-2
Alignment Scores:
Pred. No.:
1806.00
Matches: 346
Score: 0
Percent Similarity: 100.04
Conservative: 0
Description of Unknown Office Conservative: 0
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Gaps: 0

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US-09-751-299-1 (1-1041) x US-09-751-299-2 (1-346)
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                                                                         ArgAlaLeuAlaGluProLeuProGluThrGluGluGlyLeuLeuValAlaAspIleAsp
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SOFTWARE: FastSEQ for Windows V
SEQ ID NO 384

LENGTH: 346

TYPE: PRT
ORGANISM: Unknown
FEATURE:
OTHER INFORMATION: Obtained from 146-772-384
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Score:
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TITLE OF INVENTION: Nitrilases

FILE REFERENCE: Docket No. US20030124698A1 DIV-013US

CURRENT APPLICATION NUMBER: US/10/146,772

CURRENT ELING DATE: 2002-05-15

PRIOR APPLICATION NUMBER: US 60/309,006

PRIOR FILING DATE: 2001-07-30

PRIOR PRIOR APPLICATION NUMBER: US 60/351,336

PRIOR APPLICATION NUMBER: US 60/350,189

PRIOR APPLICATION NUMBER: US 60/300,189

PRIOR FILING DATE: 2001-06-21

PRIOR APPLICATION NUMBER: US 99/751,299

PRIOR FILING DATE: 2000-12-28

PRIOR APPLICATION NUMBER: US 60/254,414

PRIOR APPLICATION NUMBER: US 60/254,414

PRIOR APPLICATION NUMBER: US 60/173,609

PRIOR APPLICATION DATE: 1999-12-29
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US-10-146-772-384
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APPLICANT: Weiner, David
APPLICANT: Cheplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: Milan, Aileen
APPLICANT: Madden, Mark
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GCCGGCTATAGCGAGCCGCGGGCGGCCGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCC
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Sequence 384, Application US/10241742
Publication No. US20040002147A1
GENERAL INFORMATION:
APPLICANT: Short, Jay
APPLICANT: Short, Jay
APPLICANT: Weiner, David
APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Milan, Aileen
APPLICANT: Malan, Aileen
APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
ITILE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040002147A1 DI'
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
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US-10-241-742-384
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; PRIOR FILING DATE: 2001-06-21
; PRIOR APPLICATION NUMBER: US 09/751,299
; PRIOR APPLICATION NUMBER: US 60/254,414
; PRIOR APPLICATION NUMBER: US 60/254,414
; PRIOR FILING DATE: 2000-12-07
; PRIOR FILING DATE: 2000-12-07
; PRIOR FILING DATE: 1999-12-29
; NUMBER OF SEQ ID NOS: 386
; SOFTMARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 384
; LENGTH: 346
; TYPE: PRT
; ORGANISM: Unknown
; FEATURE: OTHER INFORMATION: Obtained from an envir US-10-241-742-384
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                                                                   ArgAlaLeuAlaGluProLeuProGluThrGluGluGlyLeuLeuValAlaAspIleAsp
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Publication No. US20040038419A1
GENERAL INFORMATION:
APPLICANT: Weiner, David Paul
APPLICANT: Chaplin, Jennifer /
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
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US-10-440-503-384
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PRIOR FILING DATE: 2002-05-15
NUMBER OF SEQ ID NOS: 386
SOPTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 384
LENGTH: 346
TYPE: PRT
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APPLICANT: Stege, Justin
TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE
TITLE OF INVENTION: NITRILES AND/OR CYANIDE
FILE REFERENCE: 09010-900001
CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
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Burk, Mark J.
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US-10-461-925-384
                          Alignment Scores:
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SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 384
LENGTH: 346
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GENERAL INFORMATION:
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                                                                                                                                                                               APPLICANT: Mark J. Burk
APPLICANT: DeSantis, Grace
APPLICANT: DeSantis, Grace
APPLICANT: Morgan, Brian
APPLICANT: Zhu, Zoulin
APPLICANT: Zhu, Zoulin
APPLICANT: Zhu, Zoulin
APPLICATION: PROCESSES FOR MAKING (R)-ETHYL 4-CYANO-3-HYDROXYBUTYRIC JETIER REFERENCE: 09010-270001
CURRENT APPLICATION NUMBER: US/10/461,925
CURRENT FILING DATE: 2003-06-13
PRIOR APPLICATION NUMBER: US 60/389,317
PRIOR PILING DATE: 2002-06-13
PRIOR FILING DATE: 2002-06-28
PRIOR FILING DATE: 2002-06-28
                                                                                 ORGANISM: Unknown FEATURE:
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                              AspValThrArgLeuLeuLeuAspArgProAlaGlnArgValValThrLeuAspAla
                                          GACGTAACGCGGCTGCTGCTGGATCGACGTCCGGCCCAACGCGTCGTCACGCTTGATGCC
                                                                                                                  ArgAlaLeuAlaGiuProLeuProGluThrGluGluGlyLeuLeuValAlaAspIleAsp
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US-10-146-772-34
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APPLICANT: Chaplin, Jenn
APPLICANT: Chi, Ellen
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ORGANISM: Unknown
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Matches:
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APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
ITITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20030124698A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR RILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR FILING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-07
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOPTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 34
LENGTH: 341
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GGCGCCCGGCTTGGGGCATGCGCTTCCTCCAGCGCTATTTCGAGAAATTCGCTCGTGCGC
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Sequence 34, Application US/10241742
Publication No. US20040002147A1
GENERAL INFORMATION:
APPLICANT: Short, Jay
APPLICANT: Short, Jay
APPLICANT: Weiner, David
APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Milan, Aileen
APPLICANT: Milan, Aileen
APPLICANT: Desantis, Grace
APPLICANT: Burk, Mark
TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040002147A1 DIV
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,006
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PRIOR FILING DATE: 2001-06-21
PRIOR PPLICATION NUMBER: US 09/751,299
PRIOR PILING DATE: 2000-12-28
PRIOR PILING DATE: 2000-12-07
PRIOR PILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR PILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: PASTSEQ for Windows Version 4.0
SEQ ID NO 34
LENGTH: 341
TYPE: PRT
ORGANISM: Unknown
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; OTHER INFORMATION:
US-10-241-742-34
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                                                                                                                             AlaLeuCysCysTrpGluHisIleGlnProLeuSerLysTyrAlaMetTyrAlaAlaAsn
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                                                                                                                                                                                           TTCGGCGAGGGAGCGCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGC
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FILE OF INVENTION UNMBER: US/10/440,523
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-20
PRIOR PILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2000-12-28
PRIOR FILING DATE: 2000-12-28
PRIOR FILING DATE: 2000-12-06
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
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; OTHER INFORMATION:
US-10-440-523-34
   US-09-751-299-1 (1-1041) x US-10-440-523-34 (1-341)
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Publication No.
GENERAL INFORMA
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APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Alleen
APPLICANT: DeSantis, Grace
APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
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                                                                                                                                                                                                                          LENGTH: 341
TYPE: PRT
ORGANISM: Unknown
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tion No. US20040014195A1
INFORMATION:
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Sequence 34, Application US/10440503 Publication No. US20040038419A1
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SEQ ID NO 34
LENGTH: 341
TYPE: PRT
ORGANISM: Unknown
FEATURE:
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APPLICANT: Burk, Mark J.

APPLICANT: Brege, Justin

TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE PRESENCE

TITLE OF INVENTION: NITRILES AND/OR CYANIDE

FILE REFERENCE: 09010-900001

CURRENT APPLICATION NUMBER: US/10/440,503

CURRENT FILING DATE: 2003-05-15

PRIOR FILING DATE: 2003-05-15

PRIOR FILING DATE: 2002-05-15
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APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: DeSantis, Grace
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SEQ ID NO 34
LENGTH: 341
TYPE: PRT
ORGANISM: Unknown
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Publication No. US20040053378A1
GENERAL INFORMATION:
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APPLICANT: DeSantis, Grace
APPLICANT: Morgan, Brian
APPLICANT: Zhu, Zoulin
TITLE OF INVENTION: PROCESSES FOR MAKING (R)-ETHYL 4-CYANO-3-HYDROXYBUTYRIC ACID
FILE REFERENCE: 09010-270001
                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE: 2002-06-13
PRIOR APPLICATION NUMBER: US 60/392,944
PRIOR FILING DATE: 2002-06-28
NUMBER OF SEQ ID NOS: 386
                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/10/461,925
CURRENT FILING DATE: 2003-06-13
PRIOR APPLICATION NUMBER: US 60/389,317
                                                                                                                                                                                                                                   FEATURE: OTHER INFORMATION: Obtained
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                        GACGTAACGCGGCTGCTGGATCGACGTCCGGCCCAACGCGTCGTCACGCTTGATGCC 960
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; Sequence 16, Application US/10146772
Publication No. US/20030124698A1
; GENERAL INFORMATION:
; APPLICANT: Short, Jay
APPLICANT: Weiner, David
; APPLICANT: Chaplin, Jennifer
; APPLICANT: Chi, Ellen
; APPLICANT: Milan, Aileen
                                                                                                   US-10-146-772-16
                                                                                                                  RESULT 12
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APPLICANT: BURK, MARK
TITLE OF INVENTION: Nitrilases
FILE REFERENCE: DOCKET NO. US20030124698A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,239
PRIOR APPLICATION NUMBER: US 99/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/54,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-29
NUMBER OF EGG ID NOS: 386
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 16
LENGTH: 348
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TYPE: PRT
ORGANISM: Unknown
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TGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGCCGAACAG
                                                             GAGGGAGACGCCACCATCTCGCCGCTGCCACGATACCGCCATCGGGCGCCCTCGGCGCGCTC
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PRIOR FILING DATE: 2001-07-30

PRIOR APPLICATION NUMBER: US 60/351,336

PRIOR APPLICATION NUMBER: US 60/350,189

PRIOR APPLICATION NUMBER: US 60/300,189

PRIOR PILING DATE: 2001-06-21

PRIOR APPLICATION NUMBER: US 09/751,299

PRIOR FILING DATE: 2000-12-28

PRIOR APPLICATION NUMBER: US 60/254,414

PRIOR PILING DATE: 2000-12-07

PRIOR PILING DATE: 1999-12-29

NUMBER OF SEQ ID NOS: 386

SOPTWARE: FASESEQ for Windows Version 4.0

SEQ ID NO 16

LENGTH: 348
                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 13
US-10-241-742-16
                                                                                                                                                                                                                                                                                                 APPLICANT: Short, Jay
APPLICANT: Weiner, Day
APPLICANT: Chaplin, Je
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aile
                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION
                                                                                                                                                                             TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040002147A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
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DeSantis, Grace
Madden, Mark
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                                                                                                                                                                                                                                                                   Burk, Mark
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TITLE OF INVENTION: NUMBER: US/10/440,523

FILE REFERENCE: DOCKET NO. US/20/440,523

CURRENT APPLICATION NUMBER: US/10/440,523

CURRENT FILING DATE: 2003-05-15

PRIOR APPLICATION NUMBER: US/10/146,772

PRIOR FILING DATE: 2002-05-15

PRIOR APPLICATION NUMBER: US 60/309,006

PRIOR FILING DATE: 2001-07-30

PRIOR APPLICATION NUMBER: US 60/351,336

PRIOR FILING DATE: 2002-01-22

PRIOR APPLICATION NUMBER: US 60/351,336

PRIOR APPLICATION NUMBER: US 60/300,189

PRIOR APPLICATION NUMBER: US 60/300,189

PRIOR FILING DATE: 2001-06-21

PRIOR FILING DATE: 2001-06-21

PRIOR FILING DATE: 2000-12-28

PRIOR APPLICATION NUMBER: US 60/254,414

PRIOR APPLICATION NUMBER: US 60/254,414

PRIOR APPLICATION NUMBER: US 60/173,609

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US-10-440-523-16
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SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 16
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APPLICANT:
                                                                                                                                                                                                                                                                                                              TYPE: PRT
ORGANISM: Unknown
FEATURE:
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Chaplin, Jennifer
Chi, Ellen
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DeSantis, Grace
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Sequence 16, Application US/10440503
Publication No. US20040038419A1
GENERAL INFORMATION:
APPLICANT: Weiner, David Paul
APPLICANT: Chaplin, Jennifer Ann
APPLICANT: Chi, Ellen
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APPLICANT: DeSantis, Grace
APPLICANT: Burk, Mark J.
APPLICANT: Burk, Mark J.
APPLICANT: McQuaid, Jeffrey
APPLICANT: McQuaid, Jeffrey
ITITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE
TITLE OF INVENTION: NITRILES AND/OR CYANIDE
FILE REFERENCE: 09010-900001
CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR FILING DATE: 2002-05-15
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 16
SEQ ID NO 16
LENGTH: 348
TYPE: PRT
ORGANISM: Unknown
FEATURE:
FORTHER INFORMATION: Obtained from an environmental s
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Best Local Similarity:
Query Match:
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                      GTCCACGTCGCGTCGTGGCCGAGCTTCAGCCTCTATCGCGGCATGGCCTATGCGCTCGGA
                                                                                                              GluGlyAspGlySerHisLeuCysValMetAspThrGluIleGlyArgValGlyAlaMet
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                                                                                                    ThrargLeuLeuPheAsnSerAlaProAlaAsnArgValGluTyrIleAsnProAlaSer 321
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Search completed: April 27, 2006, Job time : 172.128 secs

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Result
No.
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-MODEL=frame+ n2p.model -DEV=xlp
-Q=Abse/ABSSWEB spool/US09751299/runat 26042006 090044 18835/app query.fasta 1
-Q=Abse/ABSSWEB spool/US09751299/runat 26042006 090044 18835/app query.fasta 1
-DB=Published Applications AA New -QFMT=fastan -SUFFIX=rapbn -MINMATCH=0.1
-LOOPEXT=0 -UNITS=bits -START=1 -END=-1 -MATRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DOCALICN=200 -THR SCORE=pot -THR MAX=100
-THR MIN=0 -ALIGN=15 -MODE=LOCAL -OUTFMT=pto -NORM=ext -HEAPSTZB=500 -MINLEN=0
-MAXIEN=200000000 -HOST=abss02p
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Maximum Match 100%
Listing first 45 summaries
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-NO_MMAP -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG -DEV_TIMEOUT=120
-WARN_TIMEOUT=10 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6 -FGAPEXT=7
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seq length:
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1: /SIDS5/ptodata/2/pubpaa/USOS_NEW_PUB.pep:*

2: /SIDS5/ptodata/2/pubpaa/USOS_NEW_PUB.pep:*

3: /SIDS5/ptodata/2/pubpaa/USO7_NEW_PUB.pep:*

4: /SIDS5/ptodata/2/pubpaa/PCT_NEW_PUB.pep:*

5: /SIDS5/ptodata/2/pubpaa/USO0_NEW_PUB.pep:*

6: /SIDS5/ptodata/2/pubpaa/USIO_NEW_PUB.pep:*

7: /SIDS5/ptodata/2/pubpaa/USIO_NEW_PUB.pep:*

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US-10-919-182-18

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US-10-919-182-4

US-10-919-182-6

US-10-919-182-12

US-10-919-182-18

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quenc quenc	equence 20326, equence 21828,	equence 19235, equence 16388,	equence 7436,	equence 19864,	equence 14593,	equence 23618,	equence 24596,	equence 6596,	equence 6597,	equence 6598,	equence 19628,	equence 27265,	equence 12965,	equence 9081,	equence 11820,	equence 9235,	equence 17169,	equence 25889,	equence 25890,	equence 16134,	equence 21010,	equence 16134,	e 23018,	equence 14646,	equence 22026,	equence 20255,	equence 20688,	equence 6956,	equence 6954,	quence 6955,	equence 20686,

ALIGNMENTS

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APPLICANT: Kesseler, Maria
APPLICANT: Zelinski, Thomas
APPLICANT: Hauer, Bernhard
TITLE OF INVENTION: L-RHANNOSE-INDUCIBLE EXPRESSION SYSTEMS
FILE REFERENCE: 12810-00091-US
CURRENT APPLICATION NUMBER: US/10/537,075
CURRENT FILING DATE: 2005-06-01
PRIOR APPLICATION NUMBER: PCT/EP2003/013367
PRIOR APPLICATION NUMBER: DE 102 56 381.0
PRIOR FILING DATE: 2003-11-02
PRIOR FILING DATE: 2002-12-02
PRIOR FILING DATE: 2002-12-02
PRIOR FILING DATE: 2002-11-02
PRIOR FILING DATE: 2002-11-02
                                                     Percent Similarity:
Best Local Similarity:
Query Match:
US-09-751-299-1 (1-1041) x US-10-537-075-7 (1-356)
                                                                                                                                        Pred. No.:
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                                                                                                                                                                                                                                       SEQ ID NO 7
LENGTH: 35
TYPE: PRT
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Matches:
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GENERAL INFORMATION:
APPLICANT: E.I. dupont de Nemours and Compan
APPLICANT: Di Cosimo, Robert
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: Payne, Mark
INFORMATION: PRODUCTION OF 3-HYDROXYC
FILE REFERENCE: C12584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILIN DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 16
LENGTH: 369
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RESULT 3
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LENGTH: 369
TYPE: PRT
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APPLICANT: Di Co
APPLICANT: Payno
APPLICANT: O'Kee
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CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
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TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION:
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RESULT 4
US-10-919-182-4
Sequence 4, Application US/10919182
Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. dupont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: D' Cosefe, Mark
APPLICANT: O'Reefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACI,
FILE REFERENCE: CL2564 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
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                                                                                                                                                                                                                                                                                                                                                          CTGCTGGATCGACGT-----CCGGCCCAACGCGTCGTCACGCTTGATGCCGCATTC 966
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; NUMBER OF SEQ ID NOS: 18
; SOFTWARE: PatentIn version 3
; SEQ ID NO 4
; LENGTH: 369
; TYPE: PRT
; ORGANISM: Acidovorax facili
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                                                                                          {\tt GlnValIleGlyProSerAlaIleGluThrPheCysLeuAsnAspGluGlnArgAlaLeu}
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Sequence 6, Application US/10919182
Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. duPont de Nemours and Compan
APPLICANT: Di Cosimo, Robert
APPLICANT: Di Yesée, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYC
FILE REFERENCE: CL2584 US.
CURRENT APPLICATION UMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: PatentIn version 3.2
SEQ ID NO 6
LENGTH: 369
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                                 CGCGCGGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCCGATGGCGATCTGATC
                                                         ArgArgLeuGlnLeuAlaAlaArgArgAsnLysIleAlaLeuValMetGlyTyrSerGlu
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RESULT 6
US-10-919-182-12
Sequence 12, Application US/10919182
Publication No. US20080035352A1
GENERAL INFORMATION:
APPLICANT: E.I. duPont de Nemours and APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
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                                                                       APPLICANT: E.I. dupont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REPERENCE: C12584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT APPLICATION 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 12
LENGTH: 369
TYPE: PRT
                                                 ORGANISM: Artificial sequence FEATURE:
                                       OTHER INFORMATION:
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APPLICANT: E.I. duPont de Nemours and Compan
APPLICANT: Di Cosimo, Robert
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYC
FILE REFERENCE: C12584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: PatentIn version 3.2
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Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. duPont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT PILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 8
SEQ ID NO 8
                                                                                                                                                                                                     ORGANISM: Artificial sequence FEATURE:
OTHER INFORMATION: Mutant nitrilase
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42.3%
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Matches:
Conservative:
Mismatches:
Indels:
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                                                                                                                                            GAACCGCAAAAACGAGGACAAGGGCGACGCGCCCCGCGCTGCGCTGGTGGTGGCGGAAAGCGCC 1020
                                                                                                                                                                                                                     CTGCTGGATCGACGT-----
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                                                                                                        AspValAsnThrArgSerArgValGluAsnPheArgLeuArgGlnAlaAlaGluGlnGlu 344
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; ORGANISM: Zea mays subsp. m; FEATURE:
; NAME/KEY: misc feature
; LOCATION: (1). (333)
; OTHER INFORMATION: Ceres Se
US-11-096-568A-20687
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APPLICANT: Alexandrov, Nickolai et al.
FITLE OF INVENTION: Sequence-Determined DNA FITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20687
LENGTH: 333
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Query Match:
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                                            :::::::: |||
| IleGluIleTyrCysAla---
                                                                                                                                                                                                                  LeuGlyLysTyrLeuGlyLysHisArgLysValMetProThrAlaLeuGluArgValPhe 149
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                                                                                            GCGCTCTGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGAC
                                                                                                                                                           TrpGlyPheGlyAspGlySerThrIleProValTyrAspThrProIleGlyLysMetGly
                                                                                                                                                                                                                                                                                                    GCCGGCTATAGCGAGCGCGCGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCC 360
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FEATURE:
NAME/KEY: misc feature
LOCATION: (1).-(351)
OTHER INFORMATION: Ceres Seq. ID
US-11-096-568A-20686
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Best Local Similarity:
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US-11-096-568A-20686
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TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20686
LENGTH: 351
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                                                                                                                                                                136 TTCCCAGAGACTTGGATTCCCGGCTATCCC------
                                                                                                                                                                                                                   48 LeuAspLysAlaGluLysLeuValAlaGluAlaAlaGlyTyrGlySerGlnLeuValLeu
                                                                                                                                                                                                                                                                                                                                                                               16 ACGAAGTATCGCGGCGCGCGCGCGCGCGCGGTGTTCCTCGATCTCGACCGCACA
                                                           ---GCGCCGGCTTGGGGCATGCGCTTCGTCCAGCGCTATTTCGAGAATTCGCTCGTGCGC
        AsnArgThrAlaLysGlyLysGluAspPheGlnLysTyrHisAlaSerAlaIleAspVal
                                                                                                              PheProGluValPheValGlyGlyTyrProHisGlySerThrPheGlyLeuValValGly
                                                                                                                                                                                                                                                                            GTCGAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCAAGCAGGACGTGCGCCTGATCGCA 135
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Publication No. US20060048240A1

GENERAL INFORMATION:
APPLICANT: A Lexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA Francisco Invention: Therby
FILE REFERENCE: 2750-1592FUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 6955
LENGTH: 330
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                                                                                                                                                                                      TCG----TGCGCG---
                                                                                                                                                                                                          TyrCysAla----ProThr-----
                                                                                                                                                                                                                                                                                                                  TGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGACGAACAGGTC 549
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 GCGGGCCACTATTCACGGCCCGACGTAACGCGGCTGCTGCTGCATCGACGTCCGGCCCAA
                      LeuIleSerAlaAspLeuAspLeuGlyGluIleAlaArgAlaLysPheAspPheAspVal 294
                                   CTGCTGGTCGCCGATATCGACCTCGGCATGATCGCCGTTGGCCAAGGCGGCGGCCGATCCG
                                                                   ValileIleSerProLeuGlyAlaValLeuAlaGlyProAsnTyrAsp---GlyGluAla
                                                                                          ATGATTTTCGGGCCCGACGGCCGCCCCTGGCCGAGCCCCTCCCCGGAGACCGAAGAGGGA 819
                                                                                                                                        GTATTGGTGGAT----ACGCCCGACAAGGAGATGTTCCTCAAGGCCGGCGGCGGTTTTGCC
                                                                                                                                                              AlaAsnGlnPheCysArgArgArgAspTyrProProProFroGluTyrValPheAlaGly
                                                                                                                                                                                                                                                                                                      CysTrpGluAsnArgMetProLeuLeuArgThrAlaMetTyrAlaLysGlyValGluIle
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APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA I
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 6954
LENGTH: 350
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Best Local Similarity:
Query Match:
DB:
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US-11-096-568A-6954
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OTHER INFORMATION: Ceres
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ORGANISM: Glycine
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TGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGACGAACAGGTC
                                                                        GlyAspGlySerThrIleProValPheGluThrProValGlyLysIleGlyAlaAlaIle 190
                                                                                                                                                                TyrLeuGlyLy8Hi8ArgLy8IleMetProThrAlaLeuGluArgValIleTrpGlyPhe
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                                                                                                                  GGAGACGGCAGCCATCTCGCGGTGCACGATACCGCCATCGGGGGGGCGCCTCGGCGCGCTCTGT 489
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                                                                                                                                                                                                                                                       IleGluArgAspGlyTyrThrLeuTyrCysThrValLeuPhePheAspSerGlnGlyHis 150
                                                                                                                                                                                                                                                                                                                                                      GluValAspArgLeuAlaAlaMetAlaGlyLysTyrLysValHisLeuValMetGlyVal 130
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US-11-096-568A-6956
                                                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                      ; LOCATION: (1)..(233)
; OTHER INFORMATION: Ceres Seq.
US-11-096-568A-6956
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                                                                                                                      US-09-751-299-1 (1-1041) x US-11-096-568A-6956 (1-233)
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Publication No. U320060048240A1

GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
APPLICANT: ALEXANDROW, Sequence-Determined DNA Fragments and Corresponding Polypeptides
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 6956
LENGTH: 233
TYPE: DET
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TYPE: PRT
ORGANISM: Glycine max
FEATURE:
NAME/KEY: misc feature
NAME/KEY: misc feature
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                                                                                         TyrCysThrValLeuPhePheAspSerGlnGlyHisTyrLeuGlyLysHisArgLysIle
                                                           AlaGlyLysTyrLysValHisLeuValMetGlyValIleGluArgAspGlyTyrThrLeu
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                                                                                                                                                                                                Sequence 2068B, Application US/11096568A

Publication No. US20060048240A1

GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA FITTLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592FUS2
CURRENT APPLICATION UNMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20688
LENGTH: 193
TYPE: PRT
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US-11-096-568A-20688
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                                                                                                              US-11-096-568A-20688
                                                                                 Alignment Scores:
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LOCATION: (1)...(193)
OTHER INFORMATION: Ceres
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No.:
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Sequence 20255, Application US/11096568A

Publication No. US20060048240A1

GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA Fra
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592FUS2
CURRENT APPLICATION NUMBER: US/11/096,568A

CURRENT ETLING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20255
LENGTH: 440
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                                                               US-11-096-568A-20255
                                                                            NAME/KEY: misc_feature
LOCATION: (1)..(449)
OTHER INFORMATION: Ceres Seq. ID
                                                                                                                           LENGTH: 449
TYPE: PRT
ORGANISM: Zea mays subsp.
FEATURE:
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Search completed: April 27, 2006, 01:53:07 Job time : 29.2628 secs	410 uGlyArgProArg 414	41 TGCACCGCGCGC 29	396 aAlaAlaGlyArg	ATCGCTTTCTCGACTG	379 aSerThrGlyThrHisProAlaGlyGlyAlaProAlaValHisProGlyAl 396	161 TAGCCGGGAATCCAAGTCTCTGGGAATGCGATCAGGCGCCCTGCTTGGCTTGGCCGCCTGC 102	363 gGlyAlaSerAlaArgAlaAlaSerArgProThrProSerSerAlaAl 379

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Maximum Match 100%
Listing first 45 summaries
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

22	21	20	19	18	17	c 16	15	14	13	12	11	10	9	80	7	6	u	4	w	N	C	Result
91	91	97.8	99.6	101.2	101.2		109.4	116.6	122.6	127	129.4	129.4	129.8	140.8	140.8	140.8	140.8	140.8	140.8	153	155	Score
8.7	8.7	9.4	9.6	9.7	9.7	10.4	10.5	11.2	11.8	12.3	12.4	12.4	12.5	13.5	13.5	13.5	13.5	13.5	13.5	14.7	14.9	Query Match
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AW710710 e5f03ne.f CN128980 RHOH1_32 CN124733 RHOH1_6_C	AW710376 98C04ne.f AW710819 e6h01ne.f DR629554 EST101968 CW493581 fsbb001f2 CW149572 104 548 1 DR625648 EST101577 BF072824 NCSF7C3T3 AIJ29382 b4a10ne.f	AF408416 AF408416 DR624629 EST101475 DR630423 EST102055 BG278308 a3d02np.r CG811199 FSAAN59TR	

ALIGNMENTS

FEATURES Source	REFERENCE AUTHORS TITLE JOURNAL COMMENT	ACCESSION VERSION KEYWORDS SOURCE ORGANISM	RESULT 1 AQ329770/c LOCUS DEFINITION
		cultivar group) genomic clone nbxb0045909r, genomic survey sequence. AQ329770. AQ329770.1 GI:4121620 GSS. Oryza sativa (japonica cultivar-group) Oryza sativa (japonica cultivar-group) Bykaryota: Viridiplantae: Strentophyta: Embryophyta: Tracheophyta:	AQ329770 888 bp DNA linear GSS 08-JAN-1999 mbxb0045P09r CUGI Rice BAC Library Oryza sativa (japonica

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Query Match
Best Local Similarity
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                                                     Contact: Wing RA
Clemson University Genomics Institute
Clemson University
                                                                                                                                                                                     Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.

1. (bases 1 to 622)
                                                                                                                        Wing,R.A. and Dean,R.A.

A BAC End Sequencing Framework to Sequence
Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                     AQ329769 622 bp DNA linear GSS 08 nbxb0045P09f CUGI Rice BAC Library Oryza sativa (japonica cultivar-group) genomic clone nbxb0045P09f, genomic survey
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SOURCE ORGANISM

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TITLE AUTHORS RESULT 2 AQ329769

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DR631467 699 bp mRNA EST1021595 FvI Gibberella moniliformis
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                                                                                                                                                    GCCCGGGTCGAGCGGCTTGATCGCGCGCGTCAAGCCAGCGCGACCATCGCA 413
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// clone lib="CUGI Rice BAC Library"
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// carbohydrate. Monocotyledonous rice is a diploid plant (2n=24) with a haploid genome equivalent of 431 Mbp (Arumuganathan and Earle, 1991). The relatively small genome of rice, three times larger than that of Arabidopsis, makes it suitable for genomic studies. In Arabidopsis, makes it suitable for genomic studies.
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/cultivar="Nipponbare"
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Pred. No. 7.5e-25;
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Bukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;

Hypocremycetidae; Hypocreales; Nectriaceae; Gibberella.

1 (bases 1 to 699)

Brown, D.W., Cheung, F., Proctor, R.H., Butchko, A.E., Zheng, L., Lee, Y.

Utterback, T., Smith, S., Feldblyum, T., Glenn, A.E., Plattner, R.D.,

Kendra, D.F., Town, C.D. and Whitelaw, C.A.

Analysis of 87,000 expressed sequence tags reveals alternatively
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TIGR sequence name: FVIE956TH
Seq primer: AAT TAA CCC TCA CTA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USDA/ARS/NCAUR
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/clone Tip="mycelia"
/clone Tip="rv1"
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/strain="m3125"
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Pred. No. 5e-2
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Gibberella moniliformis
Gibberella moniliformis
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Hypocreomycetidae; Hypocreales; Nectriaceae; Gibberella.

1 (bases 1 to 732)
Brown, D.W., Cheung, F., Proctor, R.H., Butchko, A.E., Zheng, L., Lee, Y.,
Utterback, T., Smith, S., Feldblyum, T., Glenn, A.E., Plattner, R.D.,
Kendra, D.F., Town, C.D. and Whitelaw, C.A.
Analysis of 87,000 expressed sequence tags reveals alternatively
spliced introns in multiple genes of the fumonisin gene cluster
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: browndw@ncaur.usda.gov
TIGR sequence name: FVIEE80TH
Seq primer: AAT TAA CCC TCA CTA
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     /note="Vector: pBlueScript II SK(+) XR; Site 1: EcoRI;
/note="Vector: pBlueScript II SK(+) XR; Site 1: EcoRI;
/note="Vector: pBlueScript II SK(+) XR; Site 1: EcoRI;
/note= 2: XhoI; anamorph: Fusarium verticillioïdes. Library
FvI was prepared from growth on excised maize seedling
roots and shoots. The roots and shoots were prepared as
described above and then inoculated by dipping briefly in
a suspension of 5 x 10e6 conidia per ml. The inoculated
roots and shoots were then incubated on moistened Whatman
#1 filter paper at room temperature under sterile
conditions for 4 days. Fungal mycelial was collected,
frozen in liquid nitrogen, ground to a powder, and then
added to TRIZOl Reagent (Invitrogen, Carlsbad CA) at
approximately 1 g mycelia per 10 ml TRIZOl. The cDNA was
directionally ligated into the pBlueScript II SK(+) XR
vector (CDNA Synthesis Kit; Strategene); "
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vector (cDNA Synthesis Kit; Stratagene)
                                                                                                                                                                                                                                                                                                                                                                  /tissue_type="mycelia"
/clone_lib="FvI"
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/clone="FVIEE80"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /organism="Gibberella
/mol_type="mRNA"
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                                                                                               Gibberella moniliformis

Bukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;

Hypocreomycetidae; Hypocreales; Nectriaceae; Gibberella.

1 (bases 1 to 810)

Brown, D. W., Cheung, F., Proctor, R.H., Butchko, A.E., Zheng, L., Lee, Y.,

Utterback, T., Smith, S., Feldblyum, T., Glenn, A.E., Plattner, R.D.,

Kendra, D.F., Town, C.D. and Whitelaw, C.A.

Analysis of 87,000 expressed sequence tags reveals alternatively

spliced introns in multiple genes of the fumonisin gene cluster

Unpublished (2005)
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                                                                                                                                                                                                                                                                                            DR629486 810 bp mRNA linear EST1019614 FvI Gibberella moniliformis cDNA clone
Email: browndw@ncaur.usda.gov
TIGR sequence name: FVIDC93TH
                                                                             USDA/ARS/NCAUR
                                                                                    Contact: Brown, D.W.
                                                                                                                                                                                                                              Gibberella moniliformis
                                                                                                                                                                                                                                                                      DR629486
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309 681 6689
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Query Match
Best Local Similarity
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GGTTCACATCGCTGCTTGGCCCGTCTAC
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/note="Vector: pBlueScript II SK(+) XR; Site_1: CoRI;
/note="Vector: pBlueScript II SK(+) XR; Site_1: CoRI;
/note="Vector: pBlueScript II SK(+) XR; Site_1: CoRI;
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/clone_lib="FvI"
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/clone="FVIDC93"
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Brown, D.W., Cheung, F., Proctor, R.H., Butchko, A.E., Zheng, L., Lee, !
Utterback, T., Smith, S., Feldblyum, T., Glenn, A.E., Plattner, R.D.,
Kendra, D.F., Town, C.D. and Whitelaw, C.A.
Analysis of 80,000 expressed sequence tags reveals alternatively
spliced introns in multiple genes of the fumonisin gene cluster
Unpublished (2005)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIGR sequence name: FVIEI79TH
Seq primer: AAT TAA CCC TCA CTA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: browndw@ncaur.usda.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #1 filter paper at room temperature under sterile conditions for 4 days. Fungal mycelial was collected, frozen in liquid nitrogen, ground to a powder, and ther added to TRIZOl Reagent (Invitrogen, Carlsbad CA) at approximately 1 g mycelia per 10 ml TRIZOl. The cDNA wadirectionally ligated into the pBlueScript II SK(+) XR vector (cDNA Synthesis Kit; Stratagene)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
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clone_lib="FvI"
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/strain="m3125"
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Brown, D.W., Cheung, F., Proctor, R.H., Butchko, A.E., Zheng, L., Lee, lytterback, T., Smith, S., Feldblyum, T., Glenn, A.E., Plattner, R.D., Kendra, D.F., Town, C.D. and Whitelaw, C.A.
Analysis of 87,000 expressed sequence tags reveals alternatively spliced introns in multiple genes of the fumonisin gene cluster Unpublished (2005)
Contact: Brown, D.W.
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Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Hypocreomycetidae; Hypocreales; Nectriaceae; Gibberella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tel: 309 681 6230
Fax: 309 681 6689
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EST1012174 FvI Gibberella moniliformis cDNA clone FVIA704, mRNA
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Seq primer: AAT TAA CCC TCA C
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/tissue type="mycelia"
/clone Tip="FvI"
/clone Tip="FvI"
/clone Tip="FvI"
/clone Tip="FvI"
/clone Tip="FvI"
/note="Vector: pBlueScript II SK(+) XR; Site 1: EcoRI;
/site 2: XhoI; anamorph: Fusarium verticillioīdes. Library
FvI was prepared from growth on excised maize seedling
roots and shoots. The roots and shoots were prepared as
described above and then inoculated by dipping briefly in
a suspension of 5 x 10e6 conidia per ml. The inoculated
roots and shoots were then incubated on moistened Whatman
#1 filter paper at room temperature under sterile
conditions for 4 days. Fungal mycelial was collected,
frozen in liquid nitrogen, ground to a powder, and then
added to TRIzol Reagent (Invitrogen, Carlsbad CA) at
approximately 1 g mycelia per 10 ml TRIzol. The cDNA was
directionally ligated into the pBlueScript II SK(+) XR
                                                                                                                                                                                                                                                                                                                                                              /strain="m3125"
/db_xref="taxon:117187"
/clone="FVIA704"
                                                                                                                                                                                                                                                                                                                                                                                                                                   /mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Gibberella moniliformis"
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                                                                                                                       Hypocreumycercan, (bases 1 to 858)

1 (bases 1 to 858)

Brown, D.W., Cheung, F., Proctor, R.H., Butchko, A.E., Zheng, L., Lee, Y., Utterback, T., Smith, S., Feldblyum, T., Glenn, A.E., Plattner, R.D., Kendra, D.F., Town, C.D. and Whitelaw, C.A.

Analysis of 87,000 expressed sequence tags reveals alternatively anliced introns in multiple genes of the fumonisin gene cluster
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Gibberella moniliformis

Gibberella moniliformis

Bukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;

Hypocreemycetidae; Hypocreales; Nectriaceae; Gibberella.
1815 N. University St,
Tel: 309 681 6230
Fax: 309 681 6689
                                                                                Contact: Brown, D.W. USDA/ARS/NCAUR
                                                                                                                                                                                                                                                                                                                                                                                                                      sequence.
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Pred. No. 5e-22;
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TIGR sequence name: FVIDR72TH
Seq primer: AAT TAA CCC TCA CT
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
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                                                                                                                                                         CTGTTGCTGGGAGCACATCCAGCCATTGTCGAAAATACGCCATGTACGCCGCCGACGAACA
                                                                                                                                                                                                                                                                                                   GGTCATCAACCACCGTCGCAAGATCAAGCCAACTCACGTTGAGAAGCTTGTATACGGCGA
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                                    GGTTCACATCGCTGCTTGGCCCGTCTAC
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//note="Vector: pBlueScript II SK(+) XR; Site 1: EcoRI;
//note="Vector: pBlueScript II SK(+) XR; Site 1: EcoRI;
//note="Vector: pBlueScript II SK(+) XR; Site 1: EcoRI;
//note="Vector: pBlueScript II SK(+) XR; Site 1: EcoRI;
//note="Vector: page 1: Strain Vector II Strain Vector II Strain Vector II Seedling
//note and shoots. The roots and shoots were prepared as
//note and shoots were then incubated by dipping briefly in
//note and shoots were then incubated on moistened Whatman
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//note and shoots were then incubated on powder, and then
//note and shoots were then incubated on powder, and then
//note and shoots were then incubated on TRIZOL The cDNA was
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/clone_lib="FvI"
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/clone="FVIDR72"
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/mol_type="mRNA"
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Pred. No. 5e-22;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes; Hypocreomycetidae; Hypocreales; Nectriaceae; Gibberella.

1 (bases 1 to 655)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: woloshuk@purdue.edu
Insert Length: 655 Std Error:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Department of Botany and Plant Purdue University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Woloshuk CP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gibberella moniliformis
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ACTOTTIACOTOGOCOAAGTOCTOATOAGCCCCGATGGCTCGGTCATCAACCACCGTCGC
                               CGCGCAGCCCGCGATAACCAGATCTACGTCTCCCTCGGCTTCTCTGAGATTGACCACGCA
                                                                                                   GATIGCEGCCCGCCCACEGCATECATETCETEGCCEGCTATAGCGAGCGCGCGGCGGC
                                                                                                                                        CTGAGGCGCTACCGCGAGAACTCCATGGCCGTCGACTCTGAGGAAATGCGCCGTGTTCGT
                                                                                                                                                                          TGGATTCCCGGCTATCCCTTTTGGATATGGCTGGGCGCGCCGGCTTGGGGCATGCGCTTC
                                                                                                                                                                                                                                                                                     ATCGACTTCATCAACGAGGCCGGCCAAGCTGGCTGCAAACTCGTCGCCTTTCCCGAAGTT
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765 494 0363
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="Vector: FGGm-T-Easy; Site 1: EcoRI; Site 2: EcoRI; Fungus was grown on cracked corn. RNA was isolated using phenol LiCl method. Polya RNA was obtained with Oligotex mRNA spin columns (Qiagen). Subtracted from wild type RNA with PCR select CDNA subtraction kit (Clontech), amplified, cloned into pGEM-TEZ and transformed to B. coli DH5 alpha cells."
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strain="FT536"
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Pred. No. 1.8e-19;
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Matches 299; Conserv
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Department of Entomology
University of Maryland
4112 Plant Sciences Building,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 (bases 1 to 840)
Wang,C.S., Hu,G. and St. Leger,R.J.
Gene expression profiling of Metarhizium anisopliae grown under
different conditions: mechanisms of fungal opportunism
Unpublished (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Metarhizium anisopliae
Metarhizium anisopliae
Eukaryota; Fungi, Ascomycota; Pezizomycotina; Sordariomycetes;
Hypocreomycetidae; Hypocreales; Clavicipitaceae; mitosporic
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Blood EST0223 Metarhizium anisopliae ARSEF 2575 from inse
Metarhizium anisopliae cDNA clone B602 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: cwang4@umd.edu
Seq primer: M13 Reverse.
Location/Qualifiers
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/mol_type="mRNA"
/db_xref="taxon:5530"
/clone="B602"
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Best Local Similarity
Matches 299; Conserv
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Department of Entomology
University of Maryland
4112 Plant Sciences Building,
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1 (bases 1 to 998)

1 (bases 1 to 998)

Wang, C.S., Hu, G. and St. Leger, R.J.

Wang, C.S., Hu, G. and St. Leger, R.J.

Wang, C.S., Hu, G. and St. Leger, R.J.
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Blood EST0332 Metarhizium anisopliae ARSEF 2575 from insect blood
Metarhizium anisopliae cDNA clone B711 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                        Seq
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Unpublished (2004)
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Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Hypocreomycetidae; Hypocreales; Clavicipitaceae; mitosporic
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AGAAAGCGATCGGCCTGATCGAGCAGGCAGGCGGCCAAGCAGGACGTGCGCCTGATCGCATTCC
                                                     AGTACAAGGCTGCTTGTGTGCAAGCTGAGCCTGGATGGCTCAACCTTGAGAAAGCAGTCA
                                                                                      AGTATCGCGGCGCGGCGGTGCAGGCCGCGCGGTGTTCCTCGATCTCGACCGCACAGTCG
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                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                       cwang4@umd.edu
                                                                                                                                                                                                         /note="Vector: pCMV.SPORT6.1; Metarhizium anisopliae was grown in insect haemolymph for 24 hours. A cDNA library was constructed in the vector pCMV.SPORT6.1"
                                                                                                                                                                                                                                                                /clone_lib="Metarhizium anisopliae
blood"
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/clone="B711"
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(mol_type="mRNA"
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Pred. No. 2.2e-19;
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                                                                                                                                                                                                          1815 N. University St,
Tel: 309 681 6230
Fax: 309 681 6689
                                                                                                                                                                                                                                                                                                                                     Brown, D. W., Cheung, F., Proctor, R.H., Butchko, A.E., Zheng, L., Lee, Utterback, T., Smith, S., Feldblyum, T., Glenn, A.E., Plattner, R.D., Kendra, D.F., Town, C.D. and Whitelaw, C.A. Analysis of 87,000 expressed sequence tags reveals alternatively
                                                                                                                                                                                                                                                                                                                                                                                                                                 Gibberella moniliformis
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
                                                                                                                                                                                                                                                                                                       spliced introns in multiple genes of the fumonisin gene cluster Unpublished (2005)
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                                                                                                                                                         TIGR sequence name: FVGDB83TH Seq primer: AAT TAA CCC TCA C
                                                                                                                                                                                           Email: browndw@ncaur.usda.gov
                                                                                                                                                                                                                                                                          USDA/ARS/NCAUR
                                                                                                                                                                                                                                                                                        Contact: Brown, D.W.
                                                                                                                                                                                                                                                                                                                                                                                                    Hypocreomycetidae; Hypocreales; Nectriaceae; 1 (bases 1 to 769)
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/tissue_type="mycelia"
/clone_lib="FvG"
/note="Vector: pBlueScript
                                                                                              /organism="Gibberella moniliformis"
/mol_type="mRNA"
                                                                                                                                            Location/Qualifiers
                                                /db_xref="taxon:117187"
/clone="FVGDB83"
                                                                                 /strain="m3125"
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                                                                        אנדי 840 bp mRNA linear ו
Asn_11063 Aspergillus niger pBluescript (EcoRI-XhoI)
niger cDNA clone Asn_11063, mRNA sequence.
Aspergillus niger
Aspergillus niger
                                                DR709497.1
                                                                                                                                                                                                                                                                 AAGGCCTTCTCTCACGTCGTCTCCATGGAAGGAGCCTGCTTCGTTCTCCTGGCAAGTCAG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Site_2: XhoI; anamorph: Fusarium verticillioides. Mycelia was collected after growth in liquid GYAM medium for 96 hours. Cultures were vacuum filtered and the mycelial mats were frozen in liquid nitrogen, ground to a powder, and then added to TRIZOl Reagent (Invitrogen, Carlabad CA) at approximately 1 g mycelia per 10 ml TRIZOl. The cDNA was directionally ligated into the pBlueScript II SK(+) XR vector (cDNA Synthesis Kit; Stratagene)."
                                                GI:70825788
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51.5%;
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Pred. No. 5.7e-19;
0; Mismatches 319
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Teang, A., Storms, R. and Bulter, G.
Expressed sequence tags from Aspergillus niger cDNA library Unpublished (2005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tel: 514 848 2424 3405
Fax: 514 848 4504
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Centre for Structural and Functional Genomics Concordia University
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ATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGACGAACAGGTCCACGTCGCGTCG
                                                                                                                                                                                                                                              GCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCCGATGGCGATCTGATCGCCGCGCGC
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                                                             CTGCAGAGTGTAGTCGATACATCAGCCGGTCGCGTTGGTGCTCTTTCCTGCTGGGAGCAT
                                                                                                    CATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGCGCTCTGTTGCTGGGAGCAC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /clone lib="Aspergillus niger pBluescript (EcoRI-XhoI)"
/note="Vector: pBluescript KS+; Site 1: XhoI; Site 2:
EcoRI; Complementary DNA was synthesized with ZAP Kit
(Stratagene) using poly(A)+RNA isolated from Aspergillus
niger cultured under different carbon sources (glucose,
maltose, xylose, lactose, sorbitol, xylan, and bran).
Synthesis was primed with oligo(dT)/XhoI primer. EcoRI
adaptors were ligated to the bunt-ended, double-stranded
cDNA. The EcoRI-XhoI-digested cDNA was ligated with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EcoRI-XhoI-digested pBluescript KS+ (Invitrogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /dev_stage="mycelial growth"
/lab_host="B. coli"
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Pred. No. 8.2e-18;
0; Mismatches 394;
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Contact: Dean RA
Clemson University Genomics Institute
Clemson University
Clemson University
Tol. Octdan Hall, Clemson Universiy, Clemson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seq primer: GGAAACAGCTATGACCATGClass: BAC ends
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Sordariomycetes incertae sedis; Magnaporthaceae;
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Fax: 864 656 4293
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              /tissue_type="Protoplasts"
/lab host="E. coli DH108"
/lab host="E. coli DH108"
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/strain="70-15"
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                                                                                                                                                                                                                                                   Aspergillus niger
Aspergillus niger
Bukaryota; Pungi, Ascomycota; Pezizomycotina; Eurotiomycetes;
Burotiales; Trichocomaceae; mitosporic Trichocomaceae; Asperg
1 (bases 1 to 804)
Tsang, A., Storms, R. and Bulter, G.
Expressed sequence tags from Aspergillus niger cDNA library
Unpublished (2005)
Contact: Tsang A
Centre for Structural and Functional Genomics
Concordia University
                                                                                                                                                                                                                                                                                                                                                                                                                           DR709485 MRNA linear I Asn_11049 Aspergillus niger pBluescript (EcoRI-XhoI) niger cDNA clone Asn_11049, mKNA sequence.
DR709485 DR709485.1 GI:70825776
EST.
                                                                                                                                                                                                         7141 Sherbrooke Street West,
Tel: 514 848 2424 3405
Fax: 514 848 4504
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                                                                                                                                                                                          tsang@vax2.concordia
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                                 /db_xref="taxon:5061"
/clone="Asm_11049"
/dev_stage="mycelial growth"
/lab_host="E. coli"
                                                                                             /strain="N402"
                                                                                                                                                         Location/Qualifiers
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    note="Vector:
                     clone
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lib="Aspergillus niger pBluescript (EcoRI-XhoI)"
"Vector: pBluescript KS+; Site_1: XhoI; Site_2:
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Pred. No. 2e-16;
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ECORI; Complementary DNA was synthesized with ZAP kit
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Db 554 TGGCCGCCTCTGTTCCCTCATAGCG 578	
QY 562 TGGCCGAGCTTCAGCCTCTATCGCG 586	
Db 494 ATCCAGCCTCTGCTCAAGTATCACACTTATGCGCAGCGGGAACAAATTCATGTTGCCGCA 553	
OY 502 ATCCAGCCATTGTCGAAATACGCCATGTACGCCGACGACGACGACGACGACGACGACGGCGTCG 561	
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QY 445 CTCGCGGTGCACGATACCGCCATCGGCGCCTCGGCGCTCTGTTGCTGGGAGCAC 501	
Db 374 AAGAAAATCAAGCCCACTCATATGGAGCGGACCATTTTCGGTGACTCGTTTGGAGACTGT 433	
QY 385 CGCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTGTTCGGCGAGGGAAGGGAAGCGCAT 444	
Db 314 AACTCCCTGTATATCTCGCAGGCTATTATTGCAAGTTATGGGAAGATCCTCACCACCCGC 373	
Qy 325 GGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCCGATGGCGATCTGATCGCCGCGCGC 384	
Db 254 CAGCAATGCGCAGCGGAGAATAAAATCGTGGTTGTGTTGGGCTTTTCCGAGAACCTGCAT 313	
QY 265 GCGGATGCCGCCGCCACGGCATGCATGCTGGCCGGCTATAGCGAGCG	
Db 194 CTATCATCTATTTACATACAAAACTCCCTGAAGATTGATT	
QY 205 TTCGTCCAGCGCTATTTCGAGAATTCGCTCGTGCGCGGCAGCAAGCA	
Db 140 TGTTGGATCCCGGGATATCCTGCCTGGATTTGGGCACGGCCTGTTGACATGCGC 193	
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QY 85 GCGATCGGCCTGATCGAGCAGGCGGCCAAGCAGGACGTGCGCCTGATCGCATTCCCAGAG 144	
Db 20 CGCGTCGCAGTCACCCAGGCAGAGCCAGTCTGGCTGGAACTTGGAAGCAACCGTGAAAAAAG 79	
OY 25 CGCGGCGCGGGGGGGGGGCGGGCGGGTGTTCCTCGATCTGGACCGCACAGTCGAGAAA 84	
Query Match 10.5%; Score 109.4; DB 8; Length 804; Best Local Similarity 52.2%; Pred. No. 9.3e-15; Matches 295; Conservative 0; Mismatches 261; Indels 9; Gaps 2;	
Synthesis was primed with oligo(dT)/XhoI primer. EcoRI adaptors were ligated to the bunt-ended, double-stranded cDNA. The EcoRI-XhoI-digested cDNA was ligated with EcoRI-XhoI-digested pBluescript KS+ (Invitrogen Corp)."	
(Stratagene) using poly(A)+RNA isolated from Aspergillus niger cultured under different carbon sources (glucose, maltose, xylose, lactose, sorbitol, xylan, and bran).	

Search completed: April 27, 2006, 01:35:56 Job time: 4905.58 secs

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Title:
Perfect score:
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Maximum Match 100%
Listing first 45 summaries
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Maximum DB seq length: 200000000
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GenEmbl:*
1: gb ba:*
2: gb_in:*
3: gb_env:*
4: gb_om:*
5: gb_oav:*
6: gb_pat:*
7: gb_ph:*
9: gb_ro:*
9: gb_ro:*
10: gb_sts:*
11: gb_sts:*
12: gb_un:*
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14: gb_htg:*
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10531.310 Million cell updates/sec
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1041
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Copyright (c) 1993 - 2006 Biocceleration Ltd.
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result	Score	Query Match	Query Match Length	B	ID	Description
1	1041	100.0	1041	ωį	AY487497	AY487497 Unculture
2	1041	100.0	1041	6	AX189644	
w	682	65.5	1026	w	AY487438	_
4.	486	46.7	1062	w	AY487543	-
ທ	457.2	43.9	1065	w	AY487496	٠,
σ,	455.2	43.7	1077	ω	AY487522	_
7	454.6	43.7	1017	w	AY487536	
80	453.6	43.6	1017	w	AY487558	AY487558 Unculture
9	450.4	43.3	1017	w	AY487475	_
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12	447.8	43.0	1062	w	AY487552	AY487552 Unculture
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14	440.2	42.3	1017	w	AY487448	AY487448 Unculture
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16	437	42.0	1017	w	AY487531	AY487531 Unculture
17	436	41.9	1014	w	AY487464	-
18	427.2	41.0	1017	u	200000	

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45	44	43	42	41	40	9	38	37	36	3	34	3	32	31	30	29	28	27	26	25	24	23	22	21	20	19
328.2	341.2	343.2	343.2	343.2	345.2	345.4	352.8	353.2	370.2	370.2	370.6	376.8	377.2	379.6	380.4	381	382.2	385.2	388.8	398	399.6	408.2	420	422	422.8	423.2
31.5	32.8	33.0	33.0	33.0	33.2	33.2	33.9			35.6			36.2	36.5	36.5	36.6	36.7	37.0	37.3	38.2	38.4	39.2	40.3	40.5	40.6	40.7
110000	1011	1200	1200	1035	999	1002	1014	1050	1014	1014	1041	110000	1011	1059	110000	1014	1008	1014	1038	6976	1059	105027	1014	1038	1014	984
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Continuation (71 o	AY487507 Unculture	E12616 DNA encodin	AR036235 Sequence	AR036234 Sequence	AY487512 Unculture	AY487492 Unculture	AY487473 Unculture	AY487432 Unculture	AY487449 Unculture	AY487445 Unculture	AY487481 Unculture	Continuation (3 of	AY487546 Unculture	AY487532 Unculture	CP000075 Pseudomon	AY487515 Unculture	AY487545 Unculture	AY487479 Unculture	AY487470 Unculture	AY885240 Pseudomon	CQ874190 Sequence	AJ617740 Pseudomon	AY487463 Unculture	AY487427 Unculture	AY487429 Unculture	AY487523 Unculture

ALIGNMENTS

RESULT 1

	CDS	gene			Source	FEATURES		JOURNAL			AUTHORS	REFERENCE	JOURNAL	1			AUTHORS	REFERENCE	ORGANISM	SOURCE	KEYWORDS	VERSION	ACCESSION	DEFINITION	LOCUS	AY487497
/ TOURD Lay - BLOOD / EC number="3.5.5.7" / EC number="3.5.5.7" / codon_start=1 / evidence=experimental / product="nitrilase"	/10018	1 1041	/clone="2A13" /environmental sample	<pre>/mol type="genomic DNA" /db xref="taxon:155900"</pre>	/organism="uncultured organism"	Location/Qualifiers	Directors Place, San Diego, CA 92121, USA	Direct Submission Submitted (26-NOV-2003) Bioinformatics, Diversa Corporation, 4955	Kretz, P.L., Burk, M.J. and Short, J.M.	McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, E.,	Robertson, D.E., Chaplin, J.A., Desantis, G., Podar, M., Madden, M.,	2 (bases 1 to 1041)	Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)	Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M.	McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A.,	Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K.,	Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M.,	1 (bases 1 to 1041)	uncultured organism	uncultured organism	ENV.	AY487497.1 GI:40890198	AY487497	Uncultured organism clone ZAl3 nitrilase (BD5086) gene, complete	linear ENV	

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Query Match 100
Best Local Similarity 100
Matches 1041; Conservative
                        841
                                                                                                                                             721
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CGCGCCCTGGCCGAGCCGCTCCCGGAGACCGAAGAGGGGACTGCTGGTCGCCGATATCGAC
                                                                                      CGCGCCCTGGCCGAGCCGCTCCCGGAGACCGAAGAGGGGACTGCTGGTCGCCGATATCGAC
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CYVLASCATVSPEMIKYLDTPDKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLY
ALDIDLGMIALAKGAAADPAGHYSRPDVTRLLLDRRPAQRVVTLDAAFEPQNEDKGDAPA
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Sequence 1 from Patent WO0148175.
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                                                GGCGCCCGGCTTGGGGCATGCGCTTCCAGCGCTATTTCGAGAATTCGCTCGTGCGC
                                                                                          GTGCGCCTGATCGCATTCCCAGAGACTTGGATTCCCCGGCTATCCCTTTTTGGATATGGCTG
                                                                                                          GTGCGCCTGATCGCATTCCCAGAGACTTGGATTCCCCGGCTATCCCCTTTTGGATATGGCTG
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GGCGCGCCGGCTTGGGGCATGCGCTTCGTCCAGCGCTATTTCGAGAATTCGCTCGTGCGC
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/db_xref="taxon:32644"
/note="Description of Unkn-
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Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis
                                                                                             uncultured organism uncultured organism
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AY487438.1
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Uncultured organism
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65.5%;

Score 682; DB Pred. No. 4e-78 0; Mismatches

; . 4e-78; . 210;

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Gaps

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540 480 480 420 420 360 360 300 300 240 240 180 180 120

Length Indels

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2 (bases 1 to 1026)
Robertson, D.E., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong, McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, Kretz, P.L., Burk, M.J. and Short, J.M.
Direct Submission
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2 (bases 1 to 1005)
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Submitted (26-NOV-2003) Bioinformatics, Di
Directors Place, San Diego, CA 92121, USA
Location/Qualifiers
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1 (bases 1 to 1062)
Robertson, D. B., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snaad, M.A., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
                                                                                                                                                                                                                                                           Robertson, D.E., Chaplin, J.A., Desantis, G., Poc
Robertson, D.E., Chaplin, J.A., Desantis, G., Poc
Chi, E., Richardson, T.H., Milan, A., Miller, M.,
McQuaid, J., Farwell, B., Preston, L.A., Tan, X.,
Kretz, P.L., Burk, M.J. and Short, J.M.
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Uncultured organism clone 2A20 nitrilase (BD7753) gene, complete
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                                                                                                       TGTTCCTCAAGGCCGGCGGCTTTTGCCATGATTTTCGGGCCCGACGGCCGCCCCTGG
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KPEPKAPNVAPFAPVQAAE"
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JOURNAL
Query Match 43.9
Best Local Similarity 67.2
Matches 664; Conservative
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Robertson, D.E., Chaplin, J.A., Desantis, G., PocChi, E., Richardson, T.H., Milan, A., Miller, M., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Kretz, P.L., Burk, M.J. and Short, J.M.

Direct Submission
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Robertson, D. E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., Keller, M., Mathur, B., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (26-NOV-2003) Bioinformatics, Di Directors Place, San Diego, CA 92121, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                uncultured organism unclassified; environmental samples.
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                                                                                                                                                                                                                                                                                               S
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                                                                                                                                                                                                                                                             evidence=experimental
                                                                                                                                                                                                                                                                             codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                    clone="2A19"
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EC_number="3.5.5.7"
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                 43.9%;
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 Score 457.2; DB 3;
Pred. No. 2.2e-49;
0; Mismatches 318;
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M., Weiner,D.P., Wong,
X., Keller,M., Mathur,
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                                                                                       GCGCTGCCGGTCGACCAGGAGGCAGAGG 988
                                                                                                                       GATGCCGCATTCGAACCGCAAAACGAGG 982
                                                                                                                                                                                                                                                           GACGGCCGCGCCCTGGCCGAGCCGCTCCCGGAGACCGAAGAGGGGACTGCTGGTCGCCGAT
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1 (bases 1 to 1077)

Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., McQuaid, J., Farwell, B., Preston, L.A., Burk, M.J. and Short, J.M. Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
Submitted (26-NOV-2003) Bioinformatics, D.
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Robertson, D.E., Chaplin, J.A., Desantis, G., Poc
Robertson, D.E., Chaplin, J.A., Miller, M.,
Chi, E., Richardson, T.H., Milan, A., Miller, M.,
McQuaid, J., Farwell, B., Preston, L.A., Tan, X.,
McQuaid, J., Farwell, B., Preston, L.A., Tan, X.,
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Location/Qualifiers
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/db_xref="G1:40890249"
/db_xref="G1:40890249"
/translation="MALTHPKLKVAAVQAAPAFLDVDAAVDKAVRLIDEAAANGSSLV
AFPETWIPGYEFWIWLGSPAWAIMRGFVSRYFDNSLSYDSRQAEELRDAAKRHKLTVV
AFPETWIPGYEFWIWLGSPAWAIMRGFVSRYFDNSLSYDSRQAEELRDAAKRHKLTVV
MGLSEEAAGGSLYIAQWIIGPNOETVAQARKLKFTHAERTVFGEEDGSHLAVAVNLNPIGR
LGALCCWEHLQPLSKYAMYAQNEEIHVAAWPSFSLYDDFAHLGAEVNNAASQIYAYE
GSCFVVAPCAVISQEMIDLMCOTPDKHGLIHVAGGFTVIYGFDGARIGDKLAPDOGET
GSCFVVAPCACAVISQEMIDLMCOTPDKHGLIHVAGHFANRVETLVLPVDQVRDIDARV
VYADIDLGMIPIAKAAADPAGHYARPDVTRLLFNNRPANRVETLVLPVDQVRDIDARV
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/mol_type="genomic DNA"
/db_xref="taxon:155900"
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/product="nitrilase"
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EC_number="3.5.5.7"
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E 1 (bases 1 to 1017)

Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M.

Exploring nitrilase sequence space for enantioselective catalysis Exploring nitrilase sequence space for enantioselective catalysis (by the sequence space for enantioselective catalysis (chi, E., E., Chaplin, J., A., Desantis, G., Podar, M., Madden, M., Septerson, D.E., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M.

Direct Submission
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                                                ., Wong, K., Mathur, E.,
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850

796 790 736 730 676 670 616 610

796 787

967 916 907 856 847

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Query Match
Best Local S
Matches 672
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        CGGAGGTCAATACCGCCGCAAGCCAGATCTACGCGGTCGAGGGCGGCTGCTACGTGCTGG
                                                                                                                                                                                                                                                                                     CCATCGCGAAGCGCCGCAAGCTCCGTCCGACGCATGCCGAGCGCACGGTCTATGGCGAGG
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/product="nitrilase"
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EGSCEVLAPCATVSQAMIDELCDRPDKHALLHAGGGFAAIYGPDGSSLAEKLAPDQEG
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/evidence=experimental
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'clone="2A29"
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Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                              2 (bases 1 to 1017)

Robertson, D.E., Chaplin, J.A., Desantis, G., Poc Chi, E., Richardson, T.H., Milan, A., Miller, M., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Kretz, P.L., Burk, M.J. and Short, J.M.
                                                                                                                                                                                                                                                                                                                                                                                     Submitted (26-NOV-2003) Bioinformatics, Directors Place, San Diego, CA 92121, U
                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            uncultured organism unclassified; environmental samples.
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/product="nitrilase"
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/mol_type="genomic DNA"
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                                                                                                                               /codon start=1
                                                                                                                                              /locus_tag="BD5287"
/EC_number="3.5.5.7"
                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                      evidence=experimental
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M., Weiner,D.P., Wong,K.,
X., Keller,M., Mathur,E.,
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CGCGGCTGCTGCATCGACGTCCGGCCCAACGCGTCGACGCTTGATGCCGCATTCG
                                                          CGATCGGGATCGCGAAGAATGCCGCTGATCCGGCCGGGCACTATTCGCGCCCCGGACGTGA
                                                                                     TGATCGCGTTGGCCAAGGCGGCGGCGGCCGATCCGGCGGGCCACTATTCACGGCCCGACGTAA
                                                                                                                                  rcdcgakcaagctrccgaccagdagggccrccrgrrcgcdacarcarcgarcreggg
                                                                                                                                                            TGGCCGAGCCGCTCCCGGAGACCGAAGAGGGACTGCTGGTCGCCGATATCGACCTCGGCA
                                                                                                                                                                                                                                                                                    CGCCCTGCGCCACCGTCTCGCAGGCGATGATCGACGAGCTCTGCGACCGCGACGACAAGC
                                                                                                                                                                                                                                                                                                                CGTCGTGCGCGACCGTTTCGCCGGAGATGATCAAGGTATTGGTGGATACGCCCGACAAGG
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                                                                                                                                                                                                             ATGCGCTGCTGCATGTTGGCGGCGACGGCCATGCCGCGATCTTCGGCCCCGACGGCAGCGCGA
                                                                                                                                                                                                                                                   AGATGTTCCTCAAGGCCGGCGGCGGTTTTGCCATGATTTTCGGGCCCGACGGCCGCCCC
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RLGALCWEHLQPLSKYAMYAQWSQVHYAAWPSFSLYDPFAPALGWEVNWAASRVYAV
EGSCFVLAPCATVSQAWIDELCDRDKHALLHVGGGHAAIFGPDGSAIAWLBSDGSE
LLFADIDLGAIGIAKNAADPAGHYSRPDVTRLLLNKKPSKRVEHFALPLDTLAGEEID
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Pred. No. 6.3e-
0; Mismatches
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No. 6.3e-49;
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1 (bases 1 to 1017)

Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (26-NOV-2003) Bioinformatics, D
Directors Place, San Diego, CA 92121, USA
Location/Qualifiers
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Robertson, D.E., Chaplin, J.A., Desantis, G., Poc Chi, E., Richardson, T.H., Milan, A., Miller, M., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Kretz, P.L., Burk, M.J. and Short, J.M.
                                                                                                                                                                                                                                      Similarity
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Direct Submission
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TCCCAGAGACTTGGATTCCCGGCTATCCCCTTTTGGATATGGCTGGGCGCGCCGGCCTTGGG
                                                                                                                                                                      CGAAGTATCGCGGCGCGGCGGTGCAGGCCGCCGCTGTTCCTCGATCTCGACCGCACAG
                                                           TCGACAAGACGATCGGGCTGATCGAGGAGGGCGCCGAAGAAAAGGCGCCCAAGCTGATCGCTT
                                                                                                TCGAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCAAGCAGGACGTGCGCCTGATCGCAT
                                                                                                                                       CGAAATACAAGGTCGCCGTGGTGCAAGCTGCGCCCGCCTGGCTCGACCTCGACGCGTCGA
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                                                                                                                                                                                                                 43.3%;
ilarity 67.3%;
Conservative
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IGLSEROGGSLYLAQWLLGPDOSTIAKKRKLRFTHAERTVGFPAPALGAEVNHAARSIYAV
EGSCFVLAPCATVSQAWIDELCORPDKHALLHAGGGFAAIYGPDGSQIGDKLPEGQEG
LLIAEIDLGAIGVAKNAADPAGHYSRPDVTRLLLNRKENKRVEQFALFVDTVEEPVDVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /evidence=experimental
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/EC_number="3.5.5.7"
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/mol_type="genomic DNA"
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1 (bases 1 to 1005)
Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., MadcChi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P.,
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Robertson, D.E., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong, McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, Kretz, P.L., Burk, M.J. and Short, J.M.
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ATCGGCCTGATCGAGCAGGCGGCCAAGCAGGACGTGCGCCTGATCGCATTCCCCAGAGACCT
                                                              GCCGCAGTGGTCCAGGCCGCGCGCGCGAATGGCTCGATCTCGACCGCACCGTCGACAAGACC
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Robertson, D.E., Chaplin, J.A., Desantis, G., Poc Chi, E., Richardson, T.H., Milan, A., Miller, M., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Kretz, P.L., Burk, M.J. and Short, J.M.
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                                                                                                                                                                                     Direct Submission
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DIDLGMISMAKAAADPAGHYARPDVTKLLFNSAPANRVEYINPASGPTESLKDMGKMQ
MEAEQQKAALREMI"
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CGCGCCGCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTGTTCGGCGAGGGAAACGGCA CGGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCCGATGGCGATCTGATCGCCG TCCCGGAGACCGAAGAGGGACTGCTGGTCGCCGATATCGACCTCGGCATGATCGCGTTGG CCGTTTCGCCGGAGATGATCAAGGTATTGGTGGATACGCCCGACAAGGAGATGTTCCTCA ACGCCGCCAGCCAAATGTATGCAGCCGAAGGCCAGTGCTTTGTCCTTTGCCCCTTGCGCCA cceccecaaeccaearcraceceerceaeeeeeccrecracerecreecerecee CETEGCCGAGCTTCAGCCTCTATCGCGGCATGGCCTATGCGCTCGGACCGGAGGTCAATA GCCATCTCGCGGTGCACGATACCGCCATCGGGGGCCTCGGGCGCGCTCTGTTGCTGGGAGC GTGGCGGCAGCCTCTACATGGGCCAATCCATTATCAACGACAAGGGTGAAACGATTTTTA CAGAGACTTGGATTCCCGGCTATCCCTTTTGGATATGGCTGGGCGCCGCCGGCTTGGGGCA GCAAAGGCATCTCCCTCATTGAGGAGGCCGCTTCCAATGGAGCCAAGCTCATTGCCTTCC TGGAAGGTGGCGGGTTCACCATGATTTACGGCCCCGATGGGCGACCTCTGGCTAAACCGT AGGCCGGCGGCGGTTTTGCCATGATTTTCGGGCCCGACGGCCGCGCCCTGGCCGAGCCGC CCTGGCCGAGCTTTTCGTTATATCGGGGGGGCAGCCTATGCACTCGGCCCCGAACTGAACA ATTTGCAGCCGCTCAGCAAATATGCAATGTATTCTCAGGATGAACAAATTCACATTGCCT ACATCCAGCCATTGTCGAAATACGCCATGTACGCCGACGACCAACAGGTCCACGTCGCGT GCCATCTTTGCGTAATGGATACCGAGATTGGCCGCGTCGGCGATGTGCTGTTTGGGAAC CCCGCCGCAAACTCAAGCCAACTCATGTCGAGCGTACCGTGTTTTGGGGAAGGGAAACGGCA GCATGAACCAGGCTGCCGCCAATAACAAGATTTACGTGGTGATGGGTTATAGCGAACGCA TGCGCTTTGTCCAGCGCTATTTTGACAACTCGCTCATGCTGGGTAGTGAGCAAGCCAAGC AGAAAGCGATCGGCCTGATCGAGCAGGCGGCCAAGCAGGACGTGCGCCTGATCGCATTCC AATTTAGAGTCGCTGCAGTTCAAGCCGCCCCGGTATTTCTTGACCTGGAGGGCGCAATAA AGTATCGCGGCGCGGCGGCGCGCGCGCGGTGTTCCTCGATCTCGACCGCACAGTCG Conservative 43.1%; <u>,</u> Score 448.6; DB 3; Pred. No. 2.7e-48; Mismatches 299; Indels Length <u>,</u> Gaps 856 859 796 799 736 676 679 616 619 556 559 496 499 436 439 259 196 199 136 139 76 79 0

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Robertson, D.E., Chaplin, J.A., Desantis, G., Podar Chi, E., Richardson, T.H., Milan, A., Miller, M., We McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Ke Kretz, P.L., Burk, M.J. and Short, J.M.
Direct Submission
Submitted (26-NOV-2003) Bioinformatics, Diversa Directors Place, San Diego, CA 92121, USA
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Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis Exploring nitrilase sequence space for enantioselective catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
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                      ATACGCTATGTCGACGAAGCGGCTGCGGCCGGGCGAAGTTGATTGCGTTTCCGGAAACC
                                                      ATCGGCCTGATCGAGCAGGCGGCCAAGCAGGACGTGCGCCTGATCGCATTCCCAGAGACT 147
                                                                                        GTCGCGGCCGTGCAGGCTGCCCCCGCCTTTCTCGATCTCGATGCATCGAAAAGACA
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GSCFVIAPCATVSQVMIDELCDTPEKHQFLHVGGGFAVIYGPDGSPLAKPLPPDQEGL
LYADIDLGMISVAKAAAADPAGHYARPDVTRLLFWNRPANRVEKLALPVDQEAEVDSPL
LYADIDLGMISVAKAAAADPAGHYARPDVTRLLFWNRPANRVEKLALPVDQEAEVDSPL
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1 Similarity 68.1%; Pred. No. 2.4e-48; 619; Conservative 0; Mismatches 290; Indels 0 25 CGCGGCGCGGGGTGCAGGCCGGCGGCGGTGTTCCTCGATCTCGACCGCACAG	16618 54 5400001 5510001 16618 55 5500001 5710001 16618 56 5600001 5910001 16618 57 5700001 5910001 16618 58 5800001 5010001 16618 59 5900001 6010001 16618 59 6000001 6021221 150n (35 of 61) of AP006618 from 42.7%; Score	AP006618_46 460001 4710000 AP006618_47 4700001 4810000 AP006618_49 4900001 5010000 AP006618_50 5000001 5110000 AP006618_51 5100001 5110000 AP006618_52 5200001 5310000 AP006618_53 5300001 5310000	3700001 3700001 380000001 40000001 41000001 41000001 41000001	2600001 2700001 2800001 3000001 3100001 3100001 3400001 3400001	APO06618 07 700001 810000 APO06618 08 800001 1010000 APO06618 09 900001 1010000 APO06618 10 1000001 1110000 APO06618 11 11000001 1310000 APO06618 12 1200001 1310000 APO06618 13 1300001 1410000 APO06618 14 1400001 1510000 APO06618 15 1500001 1510000 APO06618 16 1600001 1710000 APO06618 17 1700001 1810000 APO06618 18 1800001 1910000 APO06618 19 1900001 2010000 APO06618 20 2000001 2010000 APO06618 20 2000001 2310000 APO06618 21 2100001 2310000 APO06618 22 2200001 2310000 APO06618 23 2300001 2310000 APO06618 24 2400001 2510000
ACCESSION AY487448 ACCESSION AY487448 AY487448.1 GI:40890100 VERSION AY487448.1 GI:40890100 KEYWORDS SOURCE Uncultured organism unclassified; environmental samples. REFERENCE 1 (bases 1 to 1017) AUTHORS Chi,E., Richardson,T., Milan,A., Miller,M., Weiner,D.P., Wong,K., McQuaid,J., Farwell,B., Preston,L.A., Tan,X., Snead,M.A., Keller,M., Mathur,E., Kretz,P.L., Burk,M.J. and Short,J.M. TITLE Exploring nitrilase sequence space for enantioselective catalysis JOURNAL Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004) REFERENCE 2 (bases 1 to 1017) AUTHORS Robertson,D.E., Chaplin,J.A., Desantis,G., Podar,M., Madden,M., Chi,E., Richardson,T.H., Milan,A., Miller,M., Weiner,D.P., Wong,K., Mong,K., Milan,A., Miller,M., Weiner,D.P., Wong,K., Mong,K., Milan,A., Miller,M., Weiner,D.P., Wong,K., Mong,K., Mo	Qy 925 CGACGTCCG 933 Db 70970 CCGCGGCCG 70978 RESULT 14 AY487448 LOCUS AY487448 DEFINITION Uncultured organism clone 2A25 nitrilase (BD5313) gene, complete	OY 805 GAGACCGAAGAGGGACTGCTGGTCGCCGATATCGACCTCGGCATGATCGCCTTGGCCAAG 864	QY 685 TCGCCCGGAGATGATCAAGGTATTGGTGGATACGCCGAGAGAGTGATCTTCGCGGGTGAGCCCTAAGGCC 70729 Db 70730 GACGAGGCCGGTGTCGAAGGTATTTGGTGGATACGCCCGAAGAAGGAAG	505 CAGCCATTGTCGAAATACGCCATGTACGCCGACGACGACGACGACGACGACGACGACGACGTCGCCGTCGTCGTCGTCGTCGTCGTCGTCGTCGTCGTC	Db 70250

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Submitted (26-NOV-2003) Bioinformatics, Diver. Directors Place, San Diego, CA 92121, USA Location/Qualifiers
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                                                                                                                                                                                                                                                                    GCGAGCGCGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCCGATGGCGATC
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TCCACGTCGCGTCGTGGCCGAGCTTCAGCCTCTATCGCGGCATGGCCTATGCGCTCGGAC
                                                                                                                                             GAGACGGCAGCCATCTCGCGGTGCACGA---TACCGCCATCGGGCGCCTCGGCGCGCTCT
                                                                                                                                                                                                                                                                                                                                                                CCATCGCAAAACGCCGCAAGCTGCGGCCGACACATGCCGAGCGCACGGTGTACGGCGAGG
                                                                                                                                                                                                                                      CCGAGCGCGACGCAGTCTCTATCTGGCGCAATGGTTGATCGGGCCCGATGGCGAGA
                                                                                                                                                                                                                                                                                                  AGGCCGAGAAGCTGCGCGCGGCGGTGCGCAAGGCAAAGCTCACCGCCGTGCTCGGGCTGT
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                                                                               GTTGCTGGGAGCATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGACGAACAGG
                                                                                                                                                                                                                                                                                                                              TCCCAGAGACTTGGATTCCCGGCTATCCCTTTTGGATATGGCTGGGCGCGCCGGCTTGG-
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RLGALCCWEHLQPLSKYAMYAQNEQUHVAAWSEFSLYDPFAVALGAEVNAAASRVPAV
EGSCFVLAPCATVSQAMIDELCDRPDKHTLLHVGGGFAAIYGPDGSQIGDKLAPDQEG
LLIAEIDLGAIGVAKNAADPAGHYSRPDVTRLLLNKKPYKRVEQFSPPAEAVEFTDIA
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/db_xref="GI:40890101"
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EC
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/db_xref="taxon:155900"
/clone="2A25"
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EC_number="3.5.5.7"
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Pred. No. 3.3e-47;
0; Mismatches 288;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (26-NOV-2003) Bioinformatics, D
Directors Place, San Diego, CA 92121, USA
Location/Qualifiers
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2 (bases 1 to 1017)
Robertson, D.E., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong, McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, Free Co., L. R., Can, C.,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   unclassified; environmental samples.

(bases 1 to 1017)

Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., Meller, M., Mathur, E., Kretz, P.L., Burk M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kretz, P.L., Burk, M.J. and Short, J.M.
Direct Submission
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IGLSERDGGSLYLAQWLIGPDGETIAKRRKLRPTHAERTVYGEGDGSDLAVHARPDIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /mol_type= ______155900"
/db_xref="taxon:155900"
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/EC_number="3.5.5.7"
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/mol_type="genomic DNA"
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916

ACGCGGTTGCTCAACAAGAAGCGGTACCAGCGCGTCG

955

Search completed: April Job time : 5622.87 secs 27, 03:27

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ADI62381	ADG93784	ADH36083	ADC23982	ADI64450	ADI62329	ADG93732	ADH36031	ADC23930	ADI64422	ADI62301	ADG93704	ADH36003	ADC23902	ADI64354	ADI62233	ADG93636	ADH35935	ADC23834	ADI64630	ADI62509	ADG93910	ADH36211	ADC24110	ADI64594	ADI62473
Adi62381 DNA encod	Adg93784 Nitrilase	Chem		Adi64450 DNA encod	DNA	Nitr	Chem	Adc23930 DNA seque	Adi64422 DNA encod	DNA	Nitr	Chem	-	Adi64354 DNA encod	Adi62233 DNA encod	Adg93636 Nitrilase	Chem	Adc23834 DNA seque	Adi64630 DNA encod	Adi62509 DNA encod	Nitr	Chem	Adc24110 DNA seque	Adi64594 DNA encod	Adi62473 DNA encod

ALIGNMENTS

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RESULT 1
AAD11166
                                              WPI; 2001-465211/50.
P-PSDB; AAE05488.
                                                                     Madden M, Weiner DP,
                                                                                                           29-DEC-1999; 99US-0173609P.
07-DEC-2000; 2000US-0254414P.
                                                                                                                                                   05-JUL-2001.
                                                                                                                                                                                                                                          Nitrilase; enantiomer; alpha-substituted carboxylic acid; stereoselective; hydrolysis; amino nitrile; cyanohydrin; ds.
                                                                                                                                                                                                                                                                  Nitrilase DNA
                                                                                                                                                                                                                                                                                                 AAD11166;
                                                                                                                                                                                                                                                                                                                 AAD11166 standard; DNA; 1041 BP.
                                                                                                                                   29-DEC-2000; 2000WO-US035555
                                                                                                                                                                                                                           Unidentified.
                                                                                                                                                                                                                                                                                  25-SEP-2001 (first entry)
                                                                                    (DIVE-) DIVERSA CORP. (MADD/) MADDEN D.
                                                                                                                                                                   WO200148175-A2
                                                                                                                                                                                                                                                                  世.
                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                  /product= "Nitrilase protein #1"
                                                                                                                                                                                            /*tag=
                                                                                                                                                                                                   .1041
                                                                     Chaplin JA;
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Nitrilase

Nitrilase.

Producing alpha-substituted carboxylic acid enantiomers by contacting aldehyde or ketone with cyanide, ammonia compound or its salt or amine and hydrolyzing the resulting amino nitrile or cyanohydrin with

8x22222222

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Matches 1041;
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Best Local
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CTCGGCATGATCGCCTTGGCCAAGGCGGCCGGCCGATCCGGCGGCCACTATTCACGGCCC
                                                        CGCGCCCTGGCCGAGCCGCTCCCCGGAGACCGAAGAGGGACTGCTGGTCGCCGATATCGAC
                                                                                                           GACAAGGAGATGTTCCTCAAGGCCGGCGGCGGTTTTGCCATGATTTTCGGGCCCGACGGC
                                                                                                                                      GACAAGGAGATGTTCCTCAAGGCCGGCGGCGGCTTTTTGCCATGATTTTCGGGCCCCGACGGC
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                                                                                                                                                                                                                                                         CTCGGACCGGAGGTCAATACCGCCGCAAGCCAGATCTACGCGGTCGAGGGCGGCTGCTAC
                                                                                                                                                                                                                                                                                     CTCGGACCGGAGGTCAATACCGCCGCAAGCCAGATCTACGCGGTCGAGGGCGGCTGCTAC
                                                                                                                                                                                                                                                                                                                                   GAACAGGTCCACGTCGTCGTCGCCGAGCTTCAGCCTCTATCGCGGCATGGCCTATGCG
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                                   CGCGCCCTGGCCGAGCCGCTCCCCGGAGACCGAAGAGGGACTGCTGGTCGCCGATATCGAC
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Sequence 1041 BP;

172 A; 340 C; 357 G; 172 T; 0 U; 0 Other;

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                          This invention relates to nitrilases and the nucleic acids that encode these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This polynucleotide is a DNA sequence that encodes a nitrilase enzyme of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                           Madden M,
Short JM,
                                                                                                                                                                                                                                                                                                         Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and food additive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21-JUN-2001; 2001US-0300189P
30-JUL-2001; 2001US-0309006P
22-JAN-2002; 2002US-0351336P
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P-PSDB; ADC24117.
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Mcquaid J,
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Monitoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted cyanide or a reactant that generates a cyanide or a material that converted to cyanide. a material that can Ď,

Claim 74; SEQ ID NO 383; 277pp; English.

This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a gene which encodes a nitrilase enzyme which can be used in the method of the invention.

Sequence 1041 BP; 172 A; 340 C; 357 G; 172 T; 0 U; 0 Other;

Similarity

Score 1041; Pred. No. 1.

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                                             nitrilase; nitrile; carboxylic acid; chemical process; pH; temperature; enantioselective transformation; gene; ds.
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Best Local Simi
Matches 1041;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This invention is related to a novel isolated or recombinant nucleic acid encoding a protein having nitrilase activity. Nitrilase's are capable of converting nitrile's directly to carboxylic acids and have great potential for use in industrial chemical processes. The isolated nitrilase proteins of the invention have increased activity and stability at increased pH and temperature when compared to those conventionally used. In addition, the nucleic acid of the invention is useful for screening enantioselective transformation. The present sequence is that of a DNA sequence which encodes a nitrilase enzyme of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1041 BP; 172 A; 340 C; 357 G; 172 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New isolated or recombinant nucleic acid nitrilase activity, useful for screening
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GCGCTCTGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGAC
                                                                                                      GATGGCGATCTGATCGCCGCGCGCGCCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTG
                                                                                                                                                            GCCGGCTATAGCGAGCGCGGCGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCC
                                                                                                                                                                                                              GGCGCGCCTTGGGGCATGCGCTTCCAGCGCTATTTCGAGAATTCGCTCGTGCGC
                                                                                                                                                                                                                                                                                                                         GTGCGCCTGATCGCATTCCCAGAGACTTGGATTCCCGGCTATCCCTTTTTGGATATGGCTG
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                                                            TTCGGCGAGGGAGACGCCAGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGC
                                                                                                                                            GCCGGCTATAGCGAGCGCGGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCC
                                                                                                                                                                                              GTGCGCCTGATCGCATTCCCAGAGACTTGGATTCCCCGGCTATCCCCTTTTGGATATGGCTG
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100.0%; Pred. No. 1.1e-197;
7ative 0; Mismatches 0;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                      3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric acid; mixed hyperlipidaemia; homozygous familial hypercholesterolaemia; antilipaemic; gene; ds.
                      WPI; 2004-090821/09
P-PSDB; ADI62516.
                                                                                                                                                                                        13-JUN-2002; 2002US-0389317P
28-JUN-2002; 2002US-0392944P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Atorvastatin; (R)-ethyl 4-cyano-3-hydroxybutyrate;
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Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglutaronitrile by polypeptide with nitrilase activity, convertin obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyri acid and forming atorvastatin.
                                                                                                                                                                                  converting
roxybutyric
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SEQ ID NO 383; 253pp; English.

The present invention relates to a method for preparating an atorvastatin cintermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters.

Atorvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia, mixed dyslipidaemia and homozygous familial hypercholesterolaemia. The present sequence encodes a nitrilase polypeptide obtained from an environmental

Sequence

1041 BP; 172

A; 340 ü 357

G; 172 T; 0 U;

0 Other;

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21-JUN-2001;
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15-MAY-2002;
09-SEP-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (R)-ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis; carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile moiety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S)-ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-mandelic acid; (S)-phenyl lactic acid derivative; % enantiomeric excess; (R)-phenyl lactic acid derivative; % enantiomeric excess;
     Novel isolated or
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DB; ADI64637.
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2000US-00751299
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2001US-0309006P
2002US-0351336P
2002US-00146772
2002US-00241742.
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polypeptide having nitrilase activity
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FXXXXDDDDDDDDDDDDXXX
                                   The invention describes an isolated or recombinant polypeptide (I) C comprising amino acids having a sequence at least 50 % identical to a CC sequence (S1) available in electronic form (EC) from the following web CC site ftp.seqdata.uspto.gov/sequence.html?DocID=2004014195, or its C variants, having one or more mutations at residue 55 Lys, Gly or Glu, at residue 60 glutamic acid, at residue 111 Ser, their combinations or fragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3-hydroxybutyric acid, hydrolysing a nitrile to a carboxylic acid, pdrolysing cyanohydrin moiety or an aminonitrile moiety; producing a CC hydrolysing cyanohydrin moiety or an aminonitrile moiety; producing a CC producing an (S)-ethyl 4-cyano-3-hydroxybutyric acid, producing an (R)-mandelic acid producing yearly lactic acid, producing a molecule; and for identifying a modified compound. The inventive method is useful for monitoring or determining % enantiomerric excess or % diasteromerric excess. (I) is useful in the production of food additives and drug intermediates. This sequence encodes a nitrilase of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            useful in
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Sequence 1041 BP; 172 A; 340

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Best Local Similarity
Matches 1041; Conserv 601 601 541 541 481 481 421 421 361 361 301 301 181 181 241 241 121 121 61 61 μ. CTCGGACCGGAGGTCAATACCGCCGCAAGCCCAGATCTACGCGGTCGAGGGCGGCTGCTAC GAACAGGTCCACGTCGCGTCGTGGCCGAGCTTCAGCCTCTATCGCGGCATGGCCTATGCG GCGCTCTGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGAC GCCGGCTATAGCGAGCGCGGCGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCC GATCTCGACCGCACAGTCGAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCGAAGCAGGAC GAACAGGTCCACGTCGCGTGGCCGAGCTTCAGCCTCTATCGCGGCATGGCCTATGCG GCGCTCTGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGAC TTCGGCGAGGGAGACGGCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGC TTCGGCGAGGGAGACGCCACCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGC GATGGCGATCTGATCGCCGCGCGCGCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTG GATGGCGATCTGATCGCCGCGCGCGCCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTG GGCGCGCCGGCTTGGGGCATGCGCTTCGTCCAGCGCTATTTCGAGAATTCGCTCGTGCGC GTGCGCCTGATCGCATTCCCCAGAGACTTGGATTCCCCGGCTATCCCTTTTGGATATGGCTG GTGCGCCTGATCGCATTCCCAGAGACTTGGATTCCCCGGCTATCCCTTTTTGGATATGGCTG GATCTCGACCGCACAGTCGAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCAAGCAGGAC ATGTCGGAGCCCATGACGAAGTATCGCGGCGCGGCGGTGCAGGCCGCCGCCGGTGTTCCTC ATGTCGGAGCCCATGACGAAGTATCGCGGCGCGGCGGCGAGGCCGCGCCGGTGTTCCCTC GGCGCCGGCTTGGGGCATGCGCTTCGTCCAGCGCTATTTCGAGAATTCGCTCGTGCGC 100.0%; ilarity 100.0%; Conservative (0, Score 1041; DB 12; Pred. No. 1.1e-197; Mismatches 0; Indels 0 Gaps 660 600 480 660 600 540 540 480 420 180 120 60 420 300 300 240 240 180 120 360 360 0

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22-JAN-2002;
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This invention relates to nitrilases and the nucleic acids that ence these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene; ds; nitrilase; nitrile;
enantiomer; chiral medicine.
                                                                                                                                                    Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and
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Matches 808
                                                                                                                                                                                                                                                                                                                                                             This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a gene which encodes a nitrilase enzyme which can be used in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Monitoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted to cyanide or a reactant that generates a cyanide or a material that can converted to cyanide.
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Mcquaid J,
                                                                                                                                                                                                                                                                                                            Sequence 1026 BP;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1026 BP; 158 A; 347 C; 357 G; 164 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim
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                             TTCGGCGAGGGAGACGGCAGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGC
                                                         GAAGGCGAGCTCATCGCGGCGCGCCGGAAGCTCAAGCCGACACACGCCGAGCGAACGGTG
                                                                         GATGGCGATCTGATCGCCGCGCGCCGCCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTG
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                                                                                                                                                                                                                                                                                                                                                                                                                            sequence which encodes a nitrilase enzyme of the invention.
  TTCGGCGAGGGCGACGGCACTTGGCCGTTTACGAGACGGGCGTTGGTCGCATCGGC
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                                                                                                                                                                                                                                                                   (R)-ethyl 4-cyano-3-hydroxybutyric acid; epichlorohydrin; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric acid; mixed hyperlipidaemia; homozygous familial hypercholesterolaemia; antilipaemic; gene; ds.
                 WPI; 2004-090821/09
P-PSDB; ADI62166.
                                                                                                               13-JUN-2002;
28-JUN-2002;
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                                                                                                                                                                                    24-DEC-2003.
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                                                                                                                                                                                                                                           Unidentified
                                                                                                                                                                                                                                                                                                                                          Atorvastatin;
                                                                                                                                                                                                                                                                                                                                                                   DNA encoding nitrilase polypeptide #17
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Pred. No. 2.5e-126;
0; Mismatches 210;
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07-DEC-2000; 2000US-0254414P.
28-DEC-2000; 2000US-0751299.
21-JUN-2001; 2001US-0300189P.
30-JUL-2001; 2001US-030906F.
22-JAN-2002; 2002US-0351336P.
15-MAY-2002; 2002US-00146772.
09-SEP-2002; 2002US-00241742.
                                                                                                                                                                                                                                                                                                                                               (R)-ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis; carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile molety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S)-ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-mandelic acid; (S)-phenyl lactic acid derivative; R)-phenyl lactic acid derivative; % enantiomeric excess; % diasteromeric excess; food additive; drug intermediate; ds; nitrilase;
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The invention describes an isolated or recombinant polypeptide (I) comprising amino acids having a sequence at least 50 % identical to a sequence (S1) available in electronic form (EC) from the following web site ftp.seqdata.uspto.gov/sequence.html?DocID=2004014195, or its variants, having one or more mutations at residue 55 Lys, Gly or Glu, at residue 60 glutamic acid, at residue 111 Ser, their combinations or fragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3-thydroxybutyric acid; hydrolysing a nitrile to a carboxylic acid; hydrolysing cyanohydrin moiety or an aminonitrile moiety; producing a chiral alpha-hydroxy acid molecule or a chiral amino acid molecule; producing an (S)-ethyl 4-cyano-3-hydroxybutyric acid; producing an chiral acid or (S)-mandelic acid; producing (S)-phenyl lactic acid derivative; modifying a molecule; and for identifying a modified compound. The inventive method is useful in the production of food additives and drug intermediates. This sequence encodes a nitrilase of the invention.
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GTGCTGGCCTCCTGTCTCGTCGTGACACCCCGAGATCCTGAAGGTGCTGATCGACACGCCC
                                                                                                      CTCGGGCCGGAGGTGAACACCGCCGCGAGCCAGGTCTACGCGGTCGAGGGCGGCTGCTAC
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Pred. No. 2.5e-126;
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                                                                                                                                                                                                                                                                                                                                                                               Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21-JUN-2001; 2001US-0300189P
30-JUL-2001; 2001US-0309006P
22-JAN-2002; 2002US-0351336P
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Claim 1; SEQ ID NO 211; 560pp; English.

these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This invention relates to nitrilases and the nucleic acids that This polynucleotide is a DNA encode

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CGCAAAACGAGGACAAGGGCGACGCGCCCGCGCGCGCGTGGTGGCGGAAAAGCGCCGCCG
                          GECTECTGETGEATEGACGTCCGGCCCAACGCGTCATCACGCTTGATGCCGCATTCGAAC
                                                                            TTTCGGTTGCCAAAGCGGCAGCCGATCCGGCCGGCATTATGCACGCCCGACGTCACCC
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Pred. No. 2.3e-87;
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RESULT 13
ADH36045
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                                                                                                                                                                      Query Match
Best Local Similarity
Matches 697; Conserv
                                                                                                                                                                                                                                                                                                  This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a gene which encodes a nitrilase enzyme which can be used in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Weiner D, Mcquaid J,
                                                                                                                                                                                                                                                             Sequence 1062 BP; 186 A; 355 C; 341 G; 180 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Monitoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted to cyanide or a reactant that generates a cyanide or a material that can converted to cyanide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 74; SEQ ID NO 211; 277pp; English.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chemical process monitoring-related nitrilase gene sequence SeqID211.
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                                                                                                              CGAAGTATCGCGGCGGCGGTGCAGGCCGCCGCCGCTGTTTCCTCGATCTCGACCGCACAG
  TCGAAAAGGCCGTCCGTTTCATCGACGAAGCCGGCGCCGCCGGCGCCCCGCCTCATCGCCT
                                       TCGAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCAAGCAGGACGTGCGCCTGATCGCAT
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                                                                                    CGAAATACAAAGTGGCCGCCGTGCAGGCAGCCCCGCTTTTCCTCGACCCTGGACGCCTCGG
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Stege J;
                                                                                                                                                                        Conservative
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Pred. No. 2.3e-87;
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TCCCAGAGACITGGATTCCCGGCTATCCCTTTTGGATATGGCTGGGCGCGCCGGCTTGGG

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RESULT 14
ADG93746
ID ADG93
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AC ADG93
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AC ADG93
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DE Nitri
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             Nitrilase
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                                                                                   standard; DNA; 1062
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                                                                                                                                                                                                                                                                                                                                              CGGCGCCGCTGCCGCCCGACAAGGAAGGCTTGCTCTACGCCGACATCGATCTCGGGATGA
           enzyme gene sequence SeqID211.
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Best Local Similarity
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15-MAY-2002;
09-SEP-2002;
                                                                                                                                                                                                                                                                                                                                    nitrilase; nitrile; carboxylic acid; chemical process; pH_i temperature; enantioselective transformation; gene; ds.
nitrilase activity, useful
                                                                                                                                                                                                           15-MAY-2003; 2003WO-US015712
                New isolated or recombinant nucleic acid
                                                                                                                                                                                                                                           27-NOV-2003
                                                                                                                             (DIVE-) DIVERSA CORP.
                                                           2004-090637/09.
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2002US-00241742
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Claim 44; SEQ ID NO 211; 295pp; English.

This invention is related to a novel isolated or recombinant nucleic acid encoding a protein having nitrilase activity. Nitrilase's are capable of converting nitrile's directly to carboxylic acids and have great potential for use in industrial chemical processes. The isolated nitrilase proteins of the invention have increased activity and stability at increased pH and temperature when compared to those conventionally used. In addition, the nucleic acid of the invention is useful for screening enantioselective transformation. The present sequence is that of a DNA sequence which encodes a nitrilase enzyme of the invention.

Sequence 1062 BP; 186 A; 355 C; 341 G; 180 T; 0 Ģ 0 Other;

Length 1062;

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Matches 697; Conservative
              17
CGAAGTATCGCGGCGGCGGGCGGCGGCCGGTGTTCCTCGATCTCGACCGCACAG 76
                                                 46.78;
                                      <u>.</u>.
                                    Score 486; DB 12;
Pred. No. 2.3e-87;
0; Mismatches 325;
                                       6
                                         Gaps
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8	17 CGAAATACAAAGTGGCCGCGGTGCAGGCAGGCGCCCGCTTTTCTCGACCTCGACGCCTCGG 76	76
δ	77 TCGAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCAAGCAGGACGTGCGCCTGATCGCAT 136	136
g	77 TCGAAAAGGCCGTCCGTTTCATCGACGAAGGCCGGCGCCGGCGCGCGC	136
δ.	137 TCCCAGAGACTTGGATTCCCGGCTATCCCTTTTGGATATGGCTGGGCGCGCCGGCTTGGG	196
дb	137 TTCCGGAGACCTGGATACCCCGGTTACCCCTGGTGGATCTGGCTAGGCGCGCCGGCCTGGG 196	196
Ş	197 GCATGCGCTTCGTCCAGCGCTATTTCGAGAATTTCGCTCGTGCGCGGCAGCAAGC	250
뫄	197 CTATCATGCGCGGCTTCGCTCTCGCCTATTTCGACAACTCGCTCAGCTACGACAGCCCGC 256	256
δ	251 AGTGGCAGGCCCTGGCGGATGCGGCCGCCGCCACGGCATGCAT	310
В	257 AGGCCGAGAAGCTCCGCGCCGCCGCCAAGCGCAACAAGATGGTGGTGGTGGTGCTCTCT	316
Ş	311 GCGAGCGCGGGGGGGAGCCTCTATATGGGCCAGGCGATCTTCGGCCCCGATGGCGATC 370	370
₽	317 CCGAGCGCGACGGCAGCCTTTACATCGCGCAATGGATCATCGGCCCGGACGGCGAAAA 376	376
δ	371 TGATCGCCGCGCGCGCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTGTTCGGCGAGG 430	430
Db Db	377 CCATCGCCAAGCGCAAGCTCAAGCCGACCCACGCGGAGCGGACCGTGTTCGGCGAAG 436	436
Ş	431 GAGACGGCAGCCATCTCGCGGTGCACGATACCGCCATCGGCGCCCCCGCGCGCTCTGTT 490	90
8	437 GCGACGGCTCGCATCTTGCGGTGCACGACCTTGATGTTGGCCGGCTCGGCGCTGTGCT	196

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RESULT 15
AD162343
ID AD162
XX AD162
AC AD162
XX DIA e
CX AD162
XX Atorv
XW (R)-e
XX Atorv
XW (R)-e
XW 3-hyd
XW 4-cya
XW antil
OX Unide
XX Unide
XX Unide
XX Unide
XX 13-JU
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28-JUN-2002;
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DR WPI; 2004-090821/09.

DR P-PSDB; ADJ62344.

XX Preparation of atorvastatin comprises catalytic conversion of 3-
PT hydroxyglutaronitrile by polypeptide with nitrilase activity, converting
PT hydroxyglutaronitrile by polypeptide with nitrilase activity, converting
PT hydroxyglutaronitrile by polypeptide with nitrilase activity, converting
PT hydroxyglutaronitrile or ethyl-4-cyano-3-hydroxybutyric
acid and forming atorvastatin.

XX Claim 46; SEQ ID NO 211; 253pp; English.

XX Claim 46; SEQ ID NO 211; 253pp; English.

XX Claim 46; SEQ ID NO 211; 253pp; English.

XX Claim 46; SEQ ID NO 211; 253pp; English.

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Search completed: April 26, 2006, 22:54:28 Job time: 721.835 secs

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US-08-690-493-2 US-08-690-493-2 Sequence 2, Application US/08690493 Patent No. 5872000 GENERAL INFORMATION: APPLICANT: Yu, Fujio TITLE OF INVENTION: No. 5872000el Nitrilase Gene NUMBER OF SEQUENCES: CORRESPONDENCE ADDRESS: ADDRESSEE: Steinberg, Raskin & Davidson, P.C. STREET: 1140 Avenue of the Americas CITY: New York STATE: New York COUNTRY: U.S.A. ZIP: 10036 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER: IBM PC Compatible OPERATION SYSTEM: PC-DOS/MS-DOS SOFTWARE: MS-DOS Editor CURRENT APPLICATION DATA: APPLICATION DATA: APPLICATION NUMBER: US/08/690,493 FILING DATE: 31 JUL-1996 PRIOR APPLICATION DATA: APPLICATION NUMBER: US/08/690,493 FILING DATE: 31 JUL-1996 PRIOR APPLICATION DATA: APPLICATION NUMBER: 32,728 REFERENCES/DOCKET NUMBER: 32,728 REFE	C 25 50.4 4.8 109519 3 US-09-758-759-1 26 49.8 4.8 30001 2 US-08-125-468-1 27 49.8 4.8 30001 2 US-08-125-468-1 28 49.4 4.7 1373 3 US-09-252-991A-10316 29 49.4 4.7 1383 3 US-09-252-991A-10316 29 49.4 4.7 1383 3 US-09-252-991A-10316 29 49.4 4.7 1410 3 US-09-902-540-2363 31 48.8 4.7 1494 3 US-09-902-540-1100 33 48.6 4.7 1098 3 US-09-252-991A-14467 3 US-09-252-991A-14264 31 48.6 4.7 1098 3 US-09-252-991A-14264 31 48.6 4.7 1908 3 US-09-252-991A-14264 31 48.6 4.7 1908 3 US-09-252-991A-14264 31 47.6 4.6 699 3 US-09-252-991A-14260 31 48.6 4.6 1377 3 US-09-377-557-17 3 48.6 4.6 991 3 US-09-252-991A-14260 31 47.6 4.6 991 3 US-09-252-991A-1428 47.4 4.6 3887 3 US-09-252-991A-14128 47.4 4.6 3897 3 US-09-252-991A-14128 47.4 4.6 3857 3 US-09-252-991A-14008 42 47.4 4.6 3857 3 US-09-252-991A-14008 42 47.4 4.6 154746 3 US-09-827-688-8 C 45 47.4 4.6 154746 3 US-09-827-688-8	
	Sequence 1, Appli Sequence 1, Appli Sequence 10413, A Sequence 10749, A Sequence 10749, A Sequence 11749, A Sequence 1100, Ap Sequence 14264, A Sequence 14353, Ap Sequence 17, Appl Sequence 252, Ap Sequence 252, Ap Sequence 14128, A Sequence 14018, A Sequence 14018, A Sequence 14018, A Sequence 14018, A Sequence 14018, A Sequence 14018, A Sequence 18, Appli Sequence 18, Appli Sequence 8, Appli Sequence 8, Appli Sequence 8, Appli	•

Query Match

33.0%;

Score 343.2;

DB 2;

Length 1035;

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RESULT 2
US-08-690-493-3
GENERAL INFORMATION:
APPLICANT: Yu, Fujio
TITLE OF INVENTION: No.
NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
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Matches
                                                                                     Sequence 3, Application US/08690493 Patent No. 5872000
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COMPUTER: MS-DOS GOTTWARE: MS-DOS Editor

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/690,493
FILING DATE: 31 JUL-1996
PRIOR APPLICATION NUMBER: JP 213061/1995
FILING DATE: 31-JUL-1995
APPLICATION NUMBER: JP 213061/1995
FILING DATE: 31-JUL-1995
APPLICATION NUMBER: 32.728
RAPELSY/AGENT INPORMATION:
NAME: DAVIGEON, Clifford M
REGISTRATION NUMBER: 32,728
REFERENCE/DOCKET NUMBER: 3821005
TELECOMMUNICATION: TORNATION:
TELEFAX: (212) 768-3800
TELEFAX: (212) 768-3800
TELEFAX: (212) 768-3800
TELEFAX: (212) 382-2124
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 1200 base pairs
TYPE: DICHORAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 546;
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: Steinberg, Raskin & Davidson, STREET: 1140 Avenue of the Americas CITY: New York STATE: New York COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN: MA-1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM:
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                 GTGGACCAGACCAGTCTCGGCCGAGTCGGGTCGCTGTTGGGGAACATCTGCAGCCG
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                                              GTGCACGATACCGCCATCGGGCGCCTCGGCGCGCTCTGTTGCTGGGAGCACATCCAGCCA
                                                                                                                  CTCAAGCCTACCCATGCGGAGCGCACCGTGTTCGGCGAGGGGAGACGGCAGCCATCTCGCG
                                                                                                                                                                                    ATTCCCGGCTATCCCTTTTGGATATGGCTGGGCGCGCCGGCTTGGGGCCATGCGCTTCGTC
                                                                                  CTGAAGCCGACCCACGTCGAGCGGACCCTGTTCGGTGAGGGTGATGGTTCCGATCTGGTC
                                                                                                                                                  CTGTACATGGGCCAGGCGTCATCGAGCGTGACGGGGTCGTCGTACGCACACGCCGCAAA
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Pred. No. 1.6e-67;
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RESULT 3
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Ress-Loeschke, Marion
APPLICANT: Friedrich, Thomas
APPLICANT: Hauer, Bernhard
TITLE OF INVENTION: A process for preparing chiral carboxylic acids
TITLE OF INVENTION: A process for preparing chiral carboxylic acids
TITLE OF INVENTION: which comprise a gene for the nitrilase
FILE REFERENCE: 49462
CURRENT APPLICATION NUMBER: US/09/806,876A
CURRENT FILING DATE: 2001-05-21
PRIOR APPLICATION NUMBER: Germany/19848129.2
PRIOR FILING DATE: 1998-10-19
NUMBER OF SEQ ID NOS: 9
                                                                                                                                                                                                                                                                                                                                          FEATURE:
NAME/KEY: CDS
LOCATION: 1 ... 1071
                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA ORGANISM: Alcaligenes
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                                                                                                                                                                                                                                                     Score 297.4; DB 3;
Pred. No. 2.6e-57;
0; Mismatches 376;
                                                                                                                                                                                                                                                                                          Length 1071;
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APPLICANT: Chauham, Sarita
APPLICANT: DiCosimo, Robert
APPLICANT: Dayne, Mark
APPLICANT: Payne, Mark
APPLICANT: Fayne, Mark
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
SEQ ID NO 4
TENCTH: 1110
; LENGTH: 1110
, TYPE: DNA
; ORGANIZSM: Acidovorax facilis
US-09-823-373-4
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                                                                                                                                                                                                                                                                                                                                                      Sequence 4, Application US/09823373 Patent No. 6870038 GENERAL INFORMATION:
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RESULT 5
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Local Similarity 57.0%;
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Pred. No. 2.8e-54;
0; Mismatches 392;
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APPLICANT: Chauhan, Sarita
APPLICANT: DiCoslmo, Robert
APPLICANT: DiCoslmo, Robert
APPLICANT: Bayne, Mark
APPLICANT: Gavagan, John
APPLICANT: Gavagan, John
TITLE OF INVENTION: Isolation and Expression of
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 50/193,707
PRIOR TILING DATE: 2000-03-31
NUMBER OF SEG ID NOS: 32
SOFTWARE: Microsoft Office 97
SEQ ID NO 13
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Best Local S
Matches 519
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Local Similarity 57.0%;
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                                                                     GCGACGGTCACCCGCTCGTACGCAATCGAAGGCCAAACCTTTGTGCTTTGCTCGACGCAG
                                                                                                                             TCGTGGCCGGCGATGTCCCCCTCTTCAGCCGGATGTTTTCCAACTGAGCATCGAAGCCAAC
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GENERAL INFORMATION:
APPLICANT: Chauhan, Sarita
APPLICANT: DiCosimo, Robert
APPLICANT: DiCosimo, Robert
APPLICANT: Bayne, Mark
APPLICANT: Gavagan, John
APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
SEQ ID NO 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; LENGTH: 1776
; TYPE: DNA
; ORGANISM: Acidovorax delafieldii
US-09-823-373-15
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Best Local Similarity 57.0
Matches 519; Conservative
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                 GCGCGCCGCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTGTTCCGGCGAGGGAGACGGC 438
                                                                                 GCGGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCCGATGGCGATCTGATCGCC
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Sequence 16, Application US/09823373

Patent NO. 6870038

GENERAL INFORMATION:
APPLICANT: Chauhan, Sarita
APPLICANT: DiCosimo, Robert
APPLICANT: DiCosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: Payne, Mark
APPLICANT: Failon, Robert
ITITLE OF INVENTION: Isolation and Expression of
ITITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
SEQ ID NO 16
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US-09-823-373-16
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                                                                   Matches
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TYPE: DNA
                                                                                                                                                    OTHER INFORMATION: Description of Artificial Sequence: OTHER INFORMATION: version of the nitrilase gene
                                                                                                                                                                                    ORGANISM: Artificial Sequence FEATURE:
                                                                                    Local Similarity
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milarity 51.3%;
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                                                                                   Score 202; DB 3;
Pred. No. 5.1e-36;
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RESULT 8
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; TITLE OF INVENTION: Acidovorax Facilis 72W
; FILE REFERENCE: BC-1032 US NA
; CURRENT APPLICATION NUMBER: US/09/823,373
; CURRENT FILING DATE: 2001-03-30
; PRIOR APPLICATION NUMBER: 60/193,707
; PRIOR FILING DATE: 2000-03-31
; NUMBER OF SEQ ID NOS: 32
; SOFTWARE: Microsoft Office 97
; SEQ ID NO 3
; SEQ ID NO 3
; TYPE: DNA
; ORGANISM: Acidovorax facilis
US-09-823-373-3
                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Cerbeleaud, Edith
APPLICANT: Cerbeleaud, Edith
APPLICANT: Crouzet, Joel
FITLE OF INVENTION: Polypeptide;
FITLE OF INVENTION: Activity, DI
Patent No. 5629190
FITLE OF INVENTION: Expression of TITLE OF INVENTION: to be obtain
FITLE OF INVENTION: lates by Mean Correspondences: 5
CORRESPONDENCES: 5
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Best Local Similarity
Matches 227; Conserv
CITY: Alexandria
STATE: VA
COUNTRY: USA
ZIP: 22313-1404
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Comparibl
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STREET: P.O. Box 1404
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Pred. No. 1.7e-20;
0; Mismatches 158;
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OPERATING SYSTEM: SOFTWARE: Patenti

PatentIn Release #1.0,

Version

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APPLICATION NUMBER: US/08/447,702
FILING DATE: 23-MAY-1995
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION UNMBER: US 08/194,588
FILING DATE: 10-FEB-1994
PRIOR APPLICATION NUMBER: FR 92-09-882
APPLICATION NUMBER: FR 92-09-882
APPLICATION NUMBER: FR 92-09-882
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
LENGTH: 1194 base pairs
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REFERENCE/DOCKET NUMBER: 00
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
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LOCATION:
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mes 277; Conserv
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Pred. No. 2.2e-15;
0; Mismatches 279;
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US-08-465-615-4
; Sequence 4, Application
; Patent No. 5635391
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Best Local 9
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/194,588
FILING DATE: 10-FEB-1994
APPLICATION NUMBER: FR 9209882
FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
NAME: Crane-Feury, Sharon E
REGISTRATION NUMBER: 36,113
REGISTRATION NUMBER: 36,113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (703) 836-20 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
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MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION: TELEPHONE: (703) 836-6620
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COUNTRY:
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TYPE: nucleic acid
STRANDEDNESS: single
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
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654 TTCGTCCCTAAAGGCG 669
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                                                                                                                                                                                        ATTCCCGGCTATCCCTTTTGGATATGGCTGGGCCGCCGGCTTGGGGCCATGCGCTTCGTC
                                                                                                                 ATTCCCGGCTATCCATATTGGATTTGGACATCAAATATGGACTTCACTGGAATGATGTGG
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P.O. Box 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (703) 836-2021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CERBELEAUD, Edith
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Doane,
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Pred. No. 5e-15;
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PRIOR FILING DATE: 2000-07-10
NUMBER OF SEQ ID NOS: 16825
SEQ ID NO 4902
LENGTH: 1995
                                                                                                                                                                                                                                                                                                                                                      Best
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                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Ger
FILE REFERENCE: 38-10 (15849) B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
                                                                                                                                                                                                                                                                                                                                                                                                        -09-902-540-4902
                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Myxococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
                                                                                                                                                                                                                                                                                                                                      Local Similarity
mes 258; Conserv
                                                                     309
                                                                                                                                     249
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GCGCATGATTGCGGCGGGCGTGCCCTGCATTCCTGGCTACGAGGCGTCCGACCTGGATGA
                                TTTCGGGCC--CGACGCCCCCCCCCCTG-----GCCGAGCCGCTCCCCGGAGACCGA
                                                                                                ATTGGTGGATACGCCCGACAAGGAGATGTTCCTCAAGGCCGGCGGCGGTTTTGCCCATGAT
                                                                                                                                  CTÁCGGTTTCTTGTCGGAGAACGCGGACTTCGCGCGCGCTTGCCGCGACGCGGGCCTGGT
                                                                                                                                                                CGAGGGCGGCTACGTGCTGGCGTCGTGCGCGACCGTTTCGCCGGAGATGATCAAGGT
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                                                                  GTTCATCGGCCCGGAGGCCGAGGCCATCACCCTGATGGGCAACAAGCGTCAGGCGAAGCT
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                                                                                                                                                                                                                                                                                                                                      Conservative
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APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Wiegand, Roger C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Genome Sec
FILE REFERENCE: 38-10(15849)B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2000-07-10
NUMBER OF SEQ ID NOS: 16825
SEQ ID NO 1241
LENGTH: 28493
TYPE: DNA
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Sequence 1241, Application

Patent No. 6833447

GENERAL INFORMATION:
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Best Local :
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LOCATION: (1)..(28493)
CTHER INFORMATION: unsure at all n locations
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                                                      TGAGGCGCTGGCGGTGGAGGGCGAGCGCATCGGCTTCCCCGCTGATGGTCAAGGCGGCGGC
                                                                                       AGAGGGACTGCTGGTCGCCGATATCGACCTCGGCATGATCGCGTTGGCCAAGGCGGCGGC 872
                                                                                                                                                           TTTCGGGCC--CGACGGCCGCGCCCTG-----GCCGAGCCGCTCCCGGAGACCGA 812
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Pred. No. 0.002;
0; Mismatches 255; Indels 1
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APPLICANT: Horan, Ann C.

TITLE OF INVENTION: Evernicomicin Biosynthetic Ger
FILE REFERENCE: ID0983K US
CURRENT APPLICATION NUMBER: US/09/758,759
CURRENT FILING DATE: 2001-01-11
PRIOR APPLICATION NUMBER: US 60/175,751
PRIOR FILING DATE: 2000-01-12
NUMBER OF SEQ ID NOS: 204
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 126
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Best Local :
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NAME/KEY: CDS
LOCATION: (1)...(1728)
OTHER INFORMATION: evbS
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                                                                                                     GTGCGCGACCGTTTCGCCGGAGATGATCAAGGTATTGGTGGATACGCCCGACAAGGAGAT
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GGGCCCGGCCGGGCAGGTCGTCGGCGACGACGTGGTCGTGTCGTACGTCGACCGGGCCGC 689
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Pred. No. 0.0036;
0; Mismatches 390;
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; ORGANISM: Micromonospora carbonacea
US-09-758-759-1
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Best Local Similarity
Matches 328; Conserv
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TITLE OF INVENTION: Everninomicin Biosynthetic FILE REFERENCE: ID993K US
CURRENT APPLICATION NUMBER: US/09/758,759
CURRENT FILING DATE: 2001-01-11
PRIOR APPLICATION NUMBER: US 60/175,751
PRIOR APPLICATION DATE: 2000-01-12
NUMBER OF SEQ ID NOS: 204
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US-10-152-886-94
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APPLICANT: Farnet, Chris
APPLICANT: Staffa, Alfredo
APPLICANT: Staffa, Alfredo
APPLICANT: Staffa, Alfredo
APPLICANT: Zazopoulos, Emmanuel
TITLE OF INVENTION: GENES AND PROTEINS INVOLVED IN THE BIOSYNTHESIS OF ENEDIYNE RING
TITLE OF INVENTION: STRUCTURES
FILE REFERENCE: 3011-3US
CURRENT APPLICATION NUMBER: US/10/152,886
CURRENT FILING DATE: 2002-05-21
NUMBER OF SEQ ID NOS: 102
SOFTWARE: PatentIn version 3.0
SEQ ID NO 94
LENGTH: 5877
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Best Local Similarity 42.6%;
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  GGAACGGTGGTCGAACGCTGGGAGGGGCTGGCCCTGGTCGCCGTCCGCAAACGCGGCGG
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                                                                                     ACGCTTGATGCCGCATTCGAACCGCAAAAACGAGGACAAGGGCGACGCGCCCGCGCTGCGC 1008
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Search completed: April 27, 2006, 01:43:04 Job time: 216.785 secs

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Result
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Maximum DB seq length: 200000000
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; APPLICANT: Short, Jay
; APPLICANT: Chaplin, Je;
; APPLICANT: Chaplin, Je;
; APPLICANT: Chi, Ellen
; APPLICANT: DeSancis, G.;
; APPLICANT: Milan, Aile;
; APPLICANT: Madden, Mari
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TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20030124698A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR FILING DATE: 2000-12-20
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR APPLICATION NUMBER: US 60/173,609
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PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: PastSEQ for Windows Version 4.0
SEQ ID NO 383
LENGTH: 1041
TYPE: DNA
ORGANISM: Unknown
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Matches 1041; Conserv
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Best Local :
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                                                             GAACAGGTCCACGTCGCGTGGCCGAGCTTCAGCCTCTATCGCGGCATGGCCTATGCG
                                                                                    GAACAGGTCCACGTCGCGTCGGCCGAGCTTCAGCCTCTATCGCGGCATGGCCTATGCG
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Pred. No. 5.8e-276;
Mismatches 0;
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Query Match 100.0%; Score 1041; DB 6; Length 1041;	ORGANI FEATUF OTHER IS-10-241-	SOFTWARE: FASTSEQ for SEQ ID NO 383 LENGTH: 1041 TYPE: DNA		PRIC PRIC PRIC		CURRENT FILING DATE: 2002-09-09 PRIOR APPLICATION NUMBER: US/10/146,772 PRIOR FILING DATE: 2002-05-15 PRIOR APPLICATION NUMBER: US 60/309.006		APPLICANT: Chi, Ellen APPLICANT: Milan, Aileen APPLICANT: Medanis, Grace APPLICANT: Madden, Mark	; GENERAL INFORMATION: ; APPLICANT: Short, Jay ; APPLICANT: Weiner, David ; APPLICANT: Chaplin, Jannifer	RESULT 3 US-10-241-742-383 ; Sequence 383, Application US/10241742 ; Publication No. US20040002147A1	1021 AGCGCCGCCGCGCAGTAG	Db 961 GCATTCGAACCGCAAAACGAGACAAGGGCGACGCCCCCGCGCTGCGCGTGGCGGAA 1020 Qy 1021 AGCGCCGCCGCCGCGAGTAG 1041	961 GCATTCGAACCGCAAAACGAGGACAAGGGCGACGCGCGCG	QY 901 GACGTAACGCGGCTGCTGGATCGACGTCCCAACGCGTCGTCACGCTTGATGCC 960	Db 841 CTCGGCATGATCGCGTTGGCCAAGGCGGCCGATCCGGCCACCTATTCACGGCCC 900	781 CGCGCCTGGCCGAGCCGCCGAGGACGGGGGGCCGGGGGCGGCGATATCGAC	721 781		661 GTGCTGGCGTCGTGCGCGGACCGTTTCGCCGGAGATGATCAAGGTATTGGTGGATAACGCCC	DD 601 CTCGGACCGGAGGTCAATACCGCCGCAGGCCAGATCTACGCGGTCGAGGGCGGCTGCTAC 660
Q	Db Qy	Qу	ОУ	Db Qy	Qy	Qу	D Qy	Qу	Qу	Qy Db	δο qa	Db	& B	Q	p Q	Qy dd	dg VQ	Вb	Q	Best Loc Matches
1021 AGCGCCGCGCGCGCAGTAG 1041 	GCATTCGAACCGCAAAACGAGG	901 GACGTAACGCGGCTGCTGGTGGATCGACGTCCGGCCCAACGCGTCGTCACGCTTGATGCC 960	841 CTCGGCATGATCGCGTTGGCCAAGGCGGCGGCCGATCCGGCGGCCACTATTCACGGCCC 900	781 CGCGCCTGGCCGAGCCGCTCCCGGAGACCGAAGAGGGACTGCTGGTCGCCGATATCGAC 840	721 GACAAGGAGATGTTCCTCAAGGCCGGCGGCGGCTTTTGCCATGATTTTCGGGCCCGACGGC 780	661 GTGCTGGCGTGCGCGACCGTTTCGCCGGAGATGATCAAGGTATTGGTGGATACGCCC 720	601 CTCGGACCGGAGGTCAATACCGCCGCAAGCCAGATCTACGCGGTCGAGGGGGGGCTGCTAC 660	541 GAACAGGTCCACGTCGCGTCGTGGCCGAGCTTCAGCCTCTATCGCGGCATGGCCTATGCG 600	481 GCGCTCTGTTGCTGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGAC 540	421 TTCGGCGAGGGAGACGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGC 480	361 GATGGCGATCTGATCGCCGCGCCGCCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTG 420		241 GGCAGCAAGCAGTGGCAGGCCTGGCGGATGCGGCCACGGCATGCAT		181 GGCGCGCCGGCTTGGGGCATGCGCTTCGTCCAGCGCTATTTCGAGAATTCGCTCGTGCGC 240	121 GTGCGCCTGATCGCATTCCCAGAGACTTGGATTCCCCGGCTATCCCTTTTGGATATGGCTG 180	61 GATCTCGACCGCACAGTCGAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCAAGCAGGAC 120	ATGTCGGAGCCCATGACGAAGTATCGCGGCGGCGGCGGCGGCGGCCGGTGTTCCTC	ATGTCGGAGCCCATGACGAAGTATCGCGGGGGGGGGGGG	Local Similarity 100.0%; Pred. No. 5.8e-276; les 1041; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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FILL OF INVENTION NUMBER: US/10/440,523
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2002-01-22
PRIOR FILING DATE: 2002-06-21
PRIOR FILING DATE: 2002-06-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 99/751,299
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FastSEQ for Windows Version 4.0
TYPE: DNA
DECENTRY. 1041
TYPE: DNA
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Best Local Similarity
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OTHER INFORMATION: Obtained
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             GATGGCGATCTGATCGCCGCGCGCCGCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTG
                                                                             GCCGGCTATAGCGAGCGCGCGGGCGGCAGCCTCTATATGGGCCAGGCGATCTTCGGCCCC
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Burk, Mark
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DeSantis, Grace
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b. US20040014195A1
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Pred. No. 5.8e-276;
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APPLICANT: DESantis, Grace
APPLICANT: Burk, Mark J.
APPLICANT: Burk, Mark J.
APPLICANT: McQuaid, Jeffrey
APPLICANT: McQuaid, Jeffrey
APPLICANT: Stege, Justin
TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE
TITLE OF INVENTION: NITRILES AND/OR CYANIDE
FILE REFERENCE: 09010-900001
CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR FILING DATE: 2002-05-15
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 383
LENGTH: 1041
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Sequence 383, Application US/10440503
Publication No. US20040038419A1
                                                                                                                                                                                                                                                                                              APPLICANT: Weiner, David Paul
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
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Best Local Similarity
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Pred. No. 5.8e-276;
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GENERAL INFORMATION:
APPLICANT: Mark J. Burk
APPLICANT: DeSantis, Grace
APPLICANT: DeSantis, Grace
APPLICANT: DeSantis, Grace
APPLICANT: DeSantis, Brian
APPLICANT: TILE OF INVENTION. PROCESSES FOR MAKING (R)-
FILE REFERENCE: 09010-270001
CURRENT APPLICATION NUMBER: US/10/461,925
CURRENT APPLICATION NUMBER: US 60/389,317
PRIOR APPLICATION NUMBER: US 60/389,317
PRIOR FILING DATE: 2002-06-13
PRIOR FILING DATE: 2002-06-28
NUMBER OF SEQ ID NOS: 386
SOFTMARE: FastESEQ for Windows Version 4.0
SEQ ID NO 383
LENGTH: 1041
TYPE: DNA
ORGANISM: Unknown
FEATURE:
COTHER INFORMATION: Obtained from an envirc
US-10-461-925-383
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Best Local Similarity
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                                                                                  GATGGCGATCTGATCGCCGCGCGCGCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTG
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                                            TTCGGCGAGGAGACGGCAGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%; Score 1041; DB 7; ilarity 100.0%; Pred. No. 5.8e-276; Conservative 0; Mismatches 0;
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US-10-146-772-33

I Sequence 33, Application US/10146772

Publication No. US20030124698A1

GENERAL INFORMATION:

APPLICANT: Short, Jay

APPLICANT: Weiner, David

APPLICANT: Chaplin, Jennifer

APPLICANT: Milan, Aileen

APPLICANT: Burk, Mark

APPLICANT: Burk, Mark

APPLICANT: Burk, Mark

APPLICANT: Madden, Mark

APPLICANT: Madden, Mark

APPLICANT: Mark

CURRENT APPLICATION NUMBER: US20030124698A1 DIV

CURRENT FILING DATE: 2002-05-15

PRIOR APPLICATION NUMBER: US 60/351,336

PRIOR FILING DATE: 2000-12-28

PRIOR FILING DATE: 2000-12-28

PRIOR APPLICATION NUMBER: US 60/254,414

PRIOR FILING DATE: 1999-12-29

NUMBER OF SEO ID NOS: 386

SOFTWARE: FastSEQ for Windows Version 4.0

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LENGTH: 1026
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US-10-241-742-33
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PRIOR FILLING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILLING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILLING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR FILLING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILLING DATE: 2000-12-07
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PRIOR FILTNG DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FASTSEQ for Windows Version 4
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APPLICANT: Weiher, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
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FILE REFERENCE: Docket No. US20040002147A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
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Burk, Mark
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Madden, Mark
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Pred. No. 2.5e-177;
0; Mismatches 210; Indels
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                          APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
FILE REFERENCE: Docket No. US20040014195A1 DI
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR PILING DATE: 2002-05-15
PRIOR FILING DATE: 2001-07-30
PRIOR PILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR PILING DATE: 2001-06-21
PRIOR FILING DATE: 2001-06-21
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US-10-440-523-33
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Madden, Mark
Burk, Mark
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Chaplin, Jennifer
Chi, Ellen
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; PRIOR APPLICATION NUMBER: US 60/254,414
; PRIOR FILING DATE: 2000-12-07
; PRIOR APPLICATION NUMBER: US 60/173,609
; PRIOR FILING DATE: 1999-12-29
; NUMBER OF SEQ ID NOS: 386
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 3
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Pred. No. 2.5e-177;
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APPLICANT: DeSantis, January J.
APPLICANT: McQuaid, Jeffrey
APPLICANT: McQuaid, Jeffrey
APPLICANT: Stege, Justin
APPLICANT: Stege, Justin
FITTLE OF INVENTION: ANSAYS AND KITS FOR DETECTING THE
FILE REFERENCE: 09010-900001
CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
PRIOR FILING DATE: 2003-05-15
PRIOR FILING DATE: 2002-05-15
NUMBER OF SEQ ID NOS: 386
SOOTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 33
LENGTH: 1026
TYPE: DNA
ORGANISM: Unknown
FEATURE:
OTHER INFORMATION: Obtained from an environmental
US-10-440-503-33

45. 54: Score 682; DB 7;
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APPLICANT: Weiner, David Paul
APPLICANT: Chaplin, Jennifer Au
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: DeSantis, Grace
APPLICANT: Burk, Mark J.
APPLICANT: McQuaid, Jeffrey
APPLICANT: Stege, Justin
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Best Local S
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Pred. No. 2.5e-177;
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GTCGGCTTCAGCGAGCGCGGGGAGGCCAGCCTCTACATGGGCCAGGCGATCTTCGGCCCC

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Sequence 33, Application US/10461925

Publication No. US20040053378A1

GENERAL INFORMATION:
APPLICANT: Mark J. Burk
APPLICANT: Morgan, Brian
APPLICANT: Morgan, Brian
APPLICANT: Zhu, Zoulin
FILE REFERENCE: 09010-270001

CURRENT APPLICATION NUMBER: US/10/461,925

CURRENT APPLICATION NUMBER: US 60/389,317

PRIOR APPLICATION NUMBER: US 60/389,317

PRIOR APPLICATION NUMBER: US 60/392,944

PRIOR FILING DATE: 2002-06-13

PRIOR FILING DATE: 2002-06-28

NUMBER OF SEQ ID NOS: 386

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 33

LENGTH: 1026

TYPE: DNA
ORGANISM: Unknown
PEATURE:
OTHER INFORMATION: Obtained from an environmental sample
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 65.5%;
 Score 682;
 DB
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Length 1026;
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TCGAACCGCAAAACGAGGACAAGGGCGACGCCGCGCGCTGCGCGTGGT
Db 901 GACGTGACGCGGTTGTTGCTGAACCCGCGCCCCGCGGCGCGCGTCGAAGCGCTCGGGTCCG 960
QY 901 GACGTAACGCGGCTGCTGCTGCTGGATCGACGTCCGGCCCAACGCGTCGTCACGCTTGATGCC 960
1 cresseargarescrivescearssesses and recesses
781 CGCGCGCTCGCCCAGCCGCTGCCGAGACACGCGGAGATCGAT 84
1 CGCGCCCTGGCCGAGCCGCTCCCGGAGACCGAAGAGGGACTGCTGGTCGCCGATATC
Db 721 GACAAGGAGCCGTTGCTGCCGGCGGGGGGGTTCTCGATGATCTTCGGCCCCGACGGC 780
CCCGACGG
Db 661 GTGCTGGCCTCCTGTCTCGTGAACACCCGAGATCCTGAAGGTGCTGATCGACACGCCC 720
CHICGIGCGACCGITTCGCCGGAGATGATCAAGGTATTGGTGGATACGCC
Db 601 CTCGGGCCGGAGGTGAACACCGCCGCGAGCCAGGTCTACGCGGTCGAGGGCGGCTGCTAC 660
CGGACCGGAGGTCAATACCGCCGCAAGCCAGÀTCTACGCGGTCGAGGGCGGCTGCTA
Db 541 GAACAGGTGCATGTGGCCTCGTGGCCGTGCTTCAGCCTTTATCGCGGCATGGCCTATGCG 600
Qy 541 GAACAGGTCCACGTCGCGTCGCGCCGAGCTTCAGCCTCTATCGGGGCATGGCCTATGCG 600
Db 481 GCCCTCTGCTGCTGGGAGCACATCCAGCCGCTCTCGAAATACGCGATGTATGCGGCCAAC 540
CGCTCTGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACGCCATGTACGCCGC
421 TTCGGCGAGGGCACGGCCACTTGGCCGTTTACGAGACGGGCGTTGGTCGCATCGG
Oy 421 TTCGGCGAGGGAGACGGCAGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGC 480
Db 361 GAAGGCGAGCTCATCGCGGCGCGCCGCGAAGCTCAAGCCGAACACACGCCGAACGGTG 420
QY 361 GATGGCGATCTGATCGCCGCGCGCGCGCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTG 420
Db 301 GTCGGCTTCAGCGAGCGCGGGAGGCAGCCTCTACATGGGCCAGGCGATCTTCGGCCCC 360
QY 301 GCCGGCTATAGCGAGCGCGCGCGGGGGAGCCTCTATATGGGCCAGGCGATCTTCGGCCCC 360
Db 241 GGCAGCAAACAGTGGAAACGCGATCGCCGATGCGCCGCCGCCACCGCATGACCGTCGTC 300
QY 241 GGCAGCAAGCAGTGGCAGGCCCTGGCGGATGCGCCGCCGCCCACGGCATGCAT
Db 181 GGCTCGCCGGCCTGGGGCATGCGCTTCGTGCAGCGCTATTTCGAGAACTCGCTGGTGCGC 240
CGCGCCGGCTTGGGGCATGCGCTTCGTCCAGCGCTATTTCGAGAAATTCGCTCGTGCG
Db 121 GTGCGCCTGATCGCGTTTCCGGAAACCTGGATTCCCGGCTATCCGCTCTGGATCTGGCTC 180
CGCCTGATCGCATTCCCCAGAGACTTGGATTCCCCGGCTATCCCCTTTTGGATATGG
Db 61 GATCTCGACCGCACCGTCGAGAAGACGATCGCGATCATCGAGCAGGCGGGCG
1 ATCTOCARGOOGATGAAGAAGTAATGAGGGGGGGGGGGGGGGGGGG
Best Local Similarity 79.4%; Pred. No. 2.5e-177; Matches 808; Conservative 0; Mismatches 210; Indels 0; Gaps 0;

RESULT

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APPLICANT: Burk, mark
TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20030124698A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR FILING DATE: 2002-01-22
PRIOR FILING DATE: 2001-06-21
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/354,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-07
PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 1999-12-29
INMBER OF SEQ ID NOS: 386
SOPTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 211
LENGTH: 1062
TYPE: DNA
ORGANISM: Unknown
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APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Alleen
APPLICANT: DeSantis, Grace
APPLICANT: Madden, Mark
APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
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Best Local Similarity
Matches 697; Conserv
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Publication No.
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                             GAGACGGCAGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGCGCGCTCTGTT
                                                            CCATCGCCAAGCCCCAAGCTCAAGCCGACCCACGCGGAGCGGACCGTGTTCGGCGAAG
                                                                                                                      CCGAGCGCGACGGCAGCCTTTACATCGCGCAATGGATCATCGGCCCGGACGGCGAAA
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GCGACGGCTCGCATCTTGCGGTGCACGAGCTTGATGTTGGCCGGCTCGGCGCGCTGTGCT
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o. US20030124698A1
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ilarity 67.8%;
Conservative
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Pred. No. 1.7e-123;
0; Mismatches 325; Indels
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US-10-241-742-211
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APPLICANT:
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DeSantis, Grac
Madden, Mark
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Chi, Ellen
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                                                                                                                                                                                                                                                                                                                                                                                Jay
                                                                                                                                                                                                                                                                                                                                                 Jennifer
                                                                                                                                                                                                                                                                                                        Grace
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APPLICANT: BULK, Mark
FILE REFERENCE, DOCKET NO. US20040002147A1 DIV-013US
FILE REFERENCE. DOCKET NO. US20040002147A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR PILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US/60/309,006
PRIOR APPLICATION NUMBER: US/60/309,006
PRIOR APPLICATION NUMBER: US/60/351,336
PRIOR APPLICATION NUMBER: US/60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US/60/300,189
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US/60/300,189
PRIOR APPLICATION NUMBER: US/60/300,189
PRIOR APPLICATION NUMBER: US/60/300,189
PRIOR APPLICATION NUMBER: US/60/300,189
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; NUMBER OF SEQ ID NOS: 386
; SOFTWARE: FastSEQ for Windows V.
; SEQ ID NO 211
; LENGTH: 1062
; TYPE: DNA
; ORGANISM: Unknown
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Best Local Similarity
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                TCGCGTTGGCCAAGGCGGCGGCCGATCCGGCGGGCCACTATTCACGGCCCGACGTAACGC
                                                                      CCGAGCCGCTCCCGGAGACCGAAGAGGGGACTGCTGGTCGCCGATATCGACCTCGGCATGA
                                                                                                                                TGTTCCTCAAGGCCGGCGGCGCTTTTGCCATGATTTTCGGGCCCGACGGCCCGCGCCCTGG
                                                                                                                                                                                      CGTGCGCGACCGTTTCGCCGGAGATGATCAAGGTATTGGTGGATACGCCCGACAAGGAGA
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TTTCGGTTGCCAAAGCGGCAGCCGATCCGGCCGGCCATTATGCACGCCCCGACGTCACCC
                                                      CGGCGCCGCTGCCGACAAGGAAGGCTTGCTCTACGCCGACATCGATCTCGGGATGA
                                                                                                              AGTTCCTGCATGCCGGCGGCGGCTTTGCCGTGATTTACGGCCCCGACGGCGCCCCGCTCG
                                                                                                                                                                     CGTGCGCGACCGTTTCGCAGGCGATGATCGACGAACTCTGCGATACGCCGGAGAAGCATC
                                                                                                                                                                                                                                                    AGGTCAATACCGCCGCAAGCCAGATCTACGCGGTCGAGGGCGGCTGCTACGTGCTGGCGT
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Pred. No. 1.7e-123;
0; Mismatches 325;
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TITLE OF INVENTION: Nitrilages
FILE REPERENCE: DOCKET NO. US20040014195A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR PILLING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 00/751,299
PRIOR PILLING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILLING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILLING DATE: 107 NUMBER: US 60/173,609
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APPLICANT: Short, Ja
APPLICANT: Weiner,
APPLICANT: Chaplin,
APPLICANT: Chi, Ell,
APPLICANT: Milan, A
APPLICANT: Desantis
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US-10-440-523-211
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: DNA
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GCAT-----GCGCTTCGTCCAGCGCTATTTCGAGAAATTCGCTCGTGCGCGGCAGCAAGC
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DeSantis, Grace
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Burk, Mark
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Pred. No. 1.7e-123;
0; Mismatches 325;
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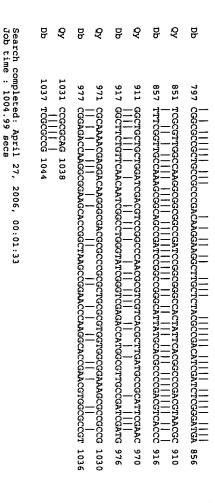
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Sequence 21, Application US/10440503
Publication No. US20040038419A1
GENERAL INFORMATION:
APPLICANT: Weiner, David Paul
APPLICANT: Chaplin, Jennifer Ann
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: Milan, Aileen
APPLICANT: Burk, Mark J.
APPLICANT: Burk, Mark J.
APPLICANT: Stege, Justin
TITLE OF INVENTION: ASSAYS AND KITS FOR
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US-10-440-503-211
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; CURRENT APPLICATION NUMBER: US/10/440,503
; CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR FILING DATE: 2002-05-15
NUMBER OF SEQ ID NOS: 386
SOFTMARE: FASTSEQ for Windows Version 4.0
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Best Local Similarity
Matches 697; Conserv
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ORCANISM: Unknown
FEATURE:
CTHER INFORMATION: Obtained from an environmental sample
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                                                   TGTTCCTCAAGGCCGGCGGCGGCGGCTTTTGCCATGATTTTCGGGCCCGACGGCCGCCCCTGG
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                                   AGTTCCTGCATGCCGGCGGCGCTTTGCCGTGATTTACGGCCCCGACGGCGCCCCGCTCG
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Title:
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Listing first 45 summaries
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Maximum DB seq length: 200000000
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Published Applications NA New:*

1: /SIDS5/ptodata/2/pubpna/US06_NEW_PUB.seq:*

2: /SIDS5/ptodata/2/pubpna/US06_NEW_PUB.seq:*

3: /SIDS5/ptodata/2/pubpna/US07_NEW_PUB.seq:*

4: /SIDS5/ptodata/2/pubpna/US07_NEW_PUB.seq:*

5: /SIDS5/ptodata/2/pubpna/US09_NEW_PUB.seq:*

6: /SIDS5/ptodata/2/pubpna/US10_NEW_PUB.seq:*

7: /SIDS5/ptodata/2/pubpna/US10_NEW_PUB.seq:*

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10: /SIDS5/ptodata/2/pubpna/US10_NEW_PUB.seq:*

11: /SIDS5/ptodata/2/pubpna/US11_NEW_PUB.seq:*

12: /SIDS5/ptodata/2/pubpna/US11_NEW_PUB.seq:*

13: /SIDS5/ptodata/2/pubpna/US11_NEW_PUB.seq:*

14: /SIDS5/ptodata/2/pubpna/US11_NEW_PUB.seq:*

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14: /SIDS5/ptodata/2/pubpna/US11_NEW_PUB.seq:*

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

16 17 18	11 12 13 14	0 10 8 7 8 8 7 8 8 9 10 10 10 10 10 10 10 10 10 10 10 10 10	Result No.
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Sequence 1, Appli Sequence 1, Appli Sequence 115, App	Sequence 20685, A Sequence 1, Appli Sequence 8, Appli Sequence 3, Appli Sequence 36, Appl	Sequence 6, Appli Sequence 3, Appli Sequence 7, Appli Sequence 11, Appl Sequence 5, Appli Sequence 13, Appl Sequence 15, Appl Sequence 4, Appli Sequence 4, Appli Sequence 4, Appli	Description

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Sequence 4, Appli Sequence 115, App	Sequence 8, Appli	Ψ	Sequence 126, App	Sequence 71, Appl	Sequence 26, Appl	Sequence 1, Appli	Sequence 6, Appli	Sequence 2, Appli	Sequence 87, Appl	15		ч	Sequence 78, Appl		Sequence 11, Appl	Sequence 5, Appli	62	60,	Sequence 58, Appl	56,	54,	•	•		•

ALIGNMENTS

204	QY 145 ACTTGGATTCCCGGCTATCCCTTTTGGATATGGCTGGGCGCGCCGGCTTGGGGCATGCGC
141	Db 82 ACCATTGAGCTGGTCGTCAGGCCCGCGATGAGGGCTGTGACCTGATCGTGTTTGGTGAA
144	Qy 85 GCGATCGGCCTGATCGAGCGGCCGAGGCCGAGGACGTGCGCCTGATCGCAGTG
81	Db 22 CGGGCAGCCGCCGTACAGGCCGCCTCTCCCCAACTACGATCTGGCAACGGGTGTTGATAAA
84	Qy 25 CGCGGCGCGGTGTAGGACGCGCGCGCGCACAGTCGAGAGAAA
	Query Match 28.6%; Score 297.4; DB 9; Length 1071; Best Local Similarity 58.2%; Pred. No. 2.3e-65; Matches 523; Conservative 0; Mismatches 376; Indels 0; Gaps
	; FALUKE; CDS ; NAME/KEY: CDS ; LOCATION: (1)(1068) ; OTHER INFORMATION: coding for nitrilase US-10-537-075-6
	; TYPE: DNA ; ORGANISM: Alcaligenes faecalis
	; SECITION 6 ; LENGTH: 1071
	TWARE
	PRIOR FILING DATE: 2002-12-02
	; CURRENT FILING DATE: 2005-06-01 ; PRIOR APPLICATION NUMBER: PCT/EP2003/013367
	CURRENT APPLICATION NUMBER: US/10/537,075
	; TITLE OF INVENTION: L-RHAMNOSE-INDUCIBLE EXPRESSION SYSTEMS
	; APPLICANT: Zelinski, Thomas ; APPLICANT: Hauer, Bernhard
	; GENEKAL INFORMATION: ; APPLICANT: Kesseler, Maria
	US-10-537-075-6; Sequence 6, Application US/10537075; Publication No. US20060014291A1
	RESULT 1

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RESULT 2
US-10-919-182-3
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                                                                              Sequence 3, Application US/10919182
Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. duPont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: O'Reste, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: PatentIn version 3.2
SEQ ID NO 3
LENGTH: 1110
    FEATURE:
NAME/KEY: CDS
                                          TYPE: DNA
ORGANISM: Acidovorax
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US-10-919-182-7
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Publication No. US20060035352A1
GENERAL INFORMATION:
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APPLICANT: O'Keefe, Daniel
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
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TYPE: DNA
ORGANISM: Artificial sequence
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Pred. No. 6.1e-62;
0; Mismatches 392;
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RESULT 4
US-10-919-182-11
; Sequence 11, Application US/10919182
; Publication No. US20060035352A1
; GENERAL IMPORMATION:
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APPLICANT: Di Cosimo, Robert
APPLICANT: Di Cosimo, Robert
APPLICANT: Dayne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
ORGANISM: Artificial sequence
FEATURE:
OTHER INFORMATION: Mutant nitrilase with Thr210
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                                                                                                                                                                                                                                                                                                      GAGAAAGCGATCGGCCTGATCGAGCAGGCGGCCCAAGCAGGACGTGCGCCTGATCGCATTC 138
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                                                       CGCCTCCAGCTGGCCGCGCCGCAACAAAATCGCACTCGTCATGGGCTATTCGGAGCGG
                                                                                       CTAAGCTTTACTTCACGCTATCACGAGAATTCGTTGGAGCTAGGTGACGACCGTATGCGT
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Pred. No. 6.1e-62;
0; Mismatches 392;
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; OTHER INFORMATION: Mut
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; NAME/KEY: CDS
; LOCATION: (1)..(1110)
US-10-919-182-5
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US-10-919-182-5
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                                                                                                                                                                                                                                                                               Sequence 5, Application US/10919182
Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. duPont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: Di Cosimo, Robert
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2594 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 5
LENGTH: 1110
                              Query Match
Best Local Similarity
Matches 518; Conservat
                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                            ORGANISM: Artificial sequence
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Pred. No. 1.5e-61;
0; Mismatches 393;
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RESULT 6
US-10-919-182-13
Sequence 13, Application US/10919182
Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. duPont de Nemours and Co
APPLICANT: DI Cosimo, Robert
APPLICANT: Payne, Mark
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SEQ ID NO 13
LENGTH: 1110
TYPE: DNA
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TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
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OTHER INFORMATION: Mutant nit
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                                                                         ACCGTTTCGCCGGAGATGATCAAGGTATTGGTGGATACGCCCGACAAGGAGATGTTCCTC
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Pred. No. 1.5e-61;
0; Mismatches 393;
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APPLICANT: E.I. duPont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION UNMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
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Best Local Similarity
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                                     AATCGGCGCAAGCTGAAGCCCACACACGTTGAGCGTACGATCTACGGCGAAGGCAACGGA
                                                                                                                                                                                                       GACAAGTCGATCGGCATCATCGAAGAAGCTGCCCAAAAAGGGCGCGAGTCTGATCGCTTTC 138
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   AGCCATCTCGCGGTGCACGATACCGCCATCGGGCGCCTCGGCGCGCTCTGTTGCTGGGAG
                                                                 GCGCGCCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTGTTCGGCGAGGGAGACGGC 438
                                                                                                    GAAGCCGGATCGCGCTATCTGAGCCAGGTGTTCATCGACGAGCGTGGCGAGATCGTTGCC
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                                                                                                                                                                       CGCCTCCAGCTGGCCGCGCGCCAACAAAATCGCACTCGTCATGGGCTATTCGGAGCGG
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US-10-919-182-17
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                                                                                                                                    Query Match
Best Local S
Matches 518
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Publication No. US2006003535ZA1
GENERAL INFORMATION:
APPLICANT: E.I. duPont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT FILING DAFE: 2004-08-16
RUMBER OF SEQ ID NOS: 18
RUMBER OF SEQ ID NOS: 18
                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn version 3.2 SEQ ID NO 17
                                                                                                                                                                                                                                                                                 TYPE: DNA ORGANISM: Artificial sequence
                                                                                                                                                                                                                                                          OTHER INFORMATION:
                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                      LENGTH: 1110
                                                                                                                                   Local Similarity
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Pred. No. 1.5e-61;
0; Mismatches 393;
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                                                                                                                                                            Sequence 4, Application US/10496351 Publication No. US20060084141A1 GENERAL INFORMATION:
APPLICANT: F1085, Heinz
APPLICANT: Yu, Tin-Wein
APPLICANT: Yu, Tin-Wein
APPLICANT: Leistner, Eckard
TITLE OF INVENTION: Biosynthetic Gene Cluster for the Maytansinoid Antitumor I
TITLE OF INVENTION: Ansamitocin
TILE REFERENCE: UWASH-06712
CURRENT APPLICATION NUMBER: US/10/496,351
CURRENT FILING DATE: 2004-05-19
NUMBER OF SEQ ID NOS: 57
SOFTWARE: Patentin version 3.0
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US-10-496-351-56/c
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; Sequence 56, Application US/10496351
; Publication No. US20060084141A1
; GENERAL INFORMATION:
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APPLICANT: Floss, Heinz
APPLICANT: Yu, Tin-Wein
APPLICANT: Leistner, Eckard
TITLE OF INVENTION: Biosynthetic Gene Cluster
TITLE OF INVENTION: Ansamitocin
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LENGTH: 9975
TYPE: DNA
ORGANISM: Actinosynnema
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CURRENT APPLICATION NUMBER: US/10/496,
CURRENT FILING DATE: 2004-05-19
NUMBER OF SEQ ID NOS: 57
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGTTGCTGGGAGCACATCCAGCCATTGTCGAAATACG---CCATGTACGCCGCCGACGA
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                              925
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RESULT 11 US-11-096-568A-20685 ; Sequence 20685, Application US/11096568A ; Publication No. US20060048240A1 ; GENERAL INFORMATION:

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; APPLICANT: Alexandrov, Nickolai et al.
; TITLE OF INVENTION: Sequence-Determined DNA F.
; TITLE OF INVENTION: Therby;
; FILE REFERENCE: 2750-1592PUS2
; CURRENT APPLICATION NUMBER: US/11/096,568A
; CURRENT FILING DATE: 2005-04-01
; NUMBER OF SEQ ID NOS: 34471
; SEQ ID NO 20685
; LENGTH: 1706
; LENGTH: 1706
; PATURE: DNA
; ORGANISM: Zea mays subsp. mays
; FEATURE:
; NAME/KEY: misc feature
; LOCATION: (1).-(1706)
; OTHER INPORMATION: Ceres Seq. ID no. 1238668
US-11-096-568A-20685
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                                                                                                                                                                                                                                                                                                                                                                          Sequence 1, Application US/10478943D publication No. US20060073574A1

GENERAL INFORMATION:
APPLICANT: University College Dublin, National University of Ireland TITLE OF INVENTION: Engineered biosynthesis of novel polyenes FILE REFERENCE: PC-1636US

CURRENT APPLICATION NUMBER: US/10/478,943D

CURRENT FILING DATE: 2001-05-31

PRIOR APPLICATION UNMBER: S2001/0527

PRIOR APPLICATION UNMBER: S2001/0527
                                                                                                                                                                                                                                                                                                 NUMBER OF SEQ ID NOS: 1
SOFTWARE: PatentIn version 3.3
SEQ ID NO 1
LENGTH: 113193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 4.6
Best Local Similarity 49.8
Matches 122; Conservative
                                                                                                                                                           Matches 124;
                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                     TYPE: DNA
ORGANISM: Streptomyces nodosus
                                                                               46971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1147 ÁTGCC 1151
                                                                                                    788 TGGCCGAGCCGCTCCCGGAGACCGAAGAGGGACTGCTGGTCGCCGATATCGACCTCGGCA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   350 TCTTCGGCCCCGATGGCGATCTGATCGCCGCGCGCGCAAGCTCAAGCCTACCCATGCGG
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                                     TGATCGCGTTGGCCAAGGCGGCGGCCGATCCGGCGGGCCACTATTCACGGCCCGACGTAA 907
                                                                           GAAAAATGGGTGCTCTCATTTGCTGGGAAAACAGAATGCCACTTCTCAGGACGGCCATGT
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TGGACGCGCTGCCCCGGGGGGCGCCATGGCCGCCGTCGAGGCCACCGAGGACGAGGTGC 47090
                                                                                                                                                           Conservative
                                                                                                                                                                           4.6%;
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Pred. No. 0.011;
0; Mismatches 123;
                                                                                                                                                      Score 47.8; DB Pred. No. 0.011; 0; Mismatches 1
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                                                                                                                                                                                            DB 7;
                                                                                                                                                      127; Indels
                                                                                                                                                                                              Length 113193;
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TITLE OF INVENTION: Biosynthetic Gene Clust.
TITLE OF INVENTION: Ansamitocin
FILE REFERENCE: UMASH-06712
CURRENT APPLICATION NUMBER: US/10/496,351
CURRENT FILING DATE: 2004-05-19
NUMBER OF SEQ ID NOS: 57
SOFTWARE: Patentin version 3.0
SEQ ID NO 8
LENGTH: 2247
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; ORGANISM: Actinosynnema pretiosum
US-10-496-351-8
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US-10-496-351-8
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Publication No. US20060084141A1
GENERAL INFORMATION:
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Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches 167;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Floss, Heinz
APPLICANT: Yu, Tin-Wein
APPLICANT: Leistner, Eckard
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                                                                                               CATCCAGCCATTGTCGAAATACGCCATGTACGCCGCCGACGAACAGGTCCACGTCGCGTC
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 GCTGCC
                                  GTGGCC
                                                                                                                                         GGACCCGTTCCTGTTCGACGGCACGATCGCGGACAACATCCGCTACGGCACGTTCTCCGC 1826
                                                                                                                                                                        CCATCTCGCGGTGCACGATACCGCCATCGGCGCGCTCTGGTGCTGGGAGCA
                                                                                                                                                                                                                                          GCGCCGCAAGCTCAAGCCTACCCATGCGGAGCGCACCGTGTTCCGGCGAGGGAAACGGCAG 440
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                                                                  CACCGACGAGGAGGCCGCGCGCGCACGCCGAGGCCCACGCGTTCGTCGAGTC
                                                                                                                                                                                                           GCGGGACGTGCGCCCTGCCCCGACCTGCGCGCGGCCGTCGGGTTCGTCGCCCCA
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Pred. No. 0.015;
0; Mismatches 199;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gene Cluster for the Maytansinoid Antitumor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 2247;
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                                                                                                                                                                                                                                                                                                                                               1646
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RESULT 14
US-10-496-351-3
; Sequence 3, Application US/10496351
; Publication No. US20060084141A1
; GENERAL INFORMATION:

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RESULT 15
US-10-933-746-36
; Sequence 36, Application US/10933746
; Publication No. US20060029998A1
; GENERAL INFORMATION:
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SEQ ID NO 3
LENGTH: 4770
TYPE: DNA
ORGANISM: Actinosynnema pretiosum
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Best Local (
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CURRENT FILING DATE: 2004-05-19
NUMBER OF SEQ ID NOS: 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: Biosynthetic Gene Cluster for the Maytansinoid Antitumor Agent TITLE OF INVENTION: Ansamitocin FILE REFERENCE: UWASH-06712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Floss,
APPLICANT: Yu, T
APPLICANT: Leist:
                                COMPUTER READBLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/10/933,746
FILING DATE: 03-Sep-2004
CLASSIFICATION: Unknown>
ATTORNEY/AGENT INFORMATION:
NAME: Lawrence, William F.
REGISTRATION NUMBER: 28,029
REGISTRATION NUMBER: 514429-3647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity
mes 125; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 44 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: HUMAN SEMAPHORIN L (H-SEMAL) AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3889
TELECOMMUNICATION INFORMATION: TELEPHONE: 212-588-0800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: FLECKENSTEIN, Bernhard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3709 ACCCCCGTCGCCGACACCACCCCCGAGGAGCACGCGCGTCCAGGCCGCCAAGGCGCTC 3768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            232 CTCGTGCGCGGCAGCAAGCAGTGGCAGGCCCTGGCGGATGCGGCCGCCGCCACGGCATG 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCCTCCAACGCGGGCGTGTGGGGCAGCGGCCAGTGCGCCTACGCCGCCGCCAACGCC 3888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGCGCCGAGCACCTCGACGAGCTGCTGGGCGGCGGCCCCCCTCGACGCGTTCGTCCTGTTC 3828
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCGGCCCCGATGGCGATCTGATCGCCGCGCGCCGCAAGCTCAAGCCTACCCCATGCGGAG 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATGTCGTGGCCGGCTATAGCGAGCGCGCGGCGGCAGCCTCTATATGGGCCAGGCGATC 351
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                                                                                                                                                                                                                                                                                                                                              CITY: New York
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Frommer Lawrence & Haug STREET: 745 Fifth Avenue
                                                                                                                                                                                                                                                                                                        ZIP: 10151
                                                                                                                                                                                                                                                                                                                         COUNTRY:
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Pred. No. 0.015;
0; Mismatches 129;
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Best Local Similarity 45.3%;
Matches 173; Conservation
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MOLECULE TYPE: DNA (genomic)
SEQUENCE DESCRIPTION: SEQ ID NO:
3292
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                                   CGACGAACAGGTCCACGTCGCG
                                                                          GCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGACCAACTACAAGAC 3291
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                                                                                                                                                                                                                                                             CCCCGATGGCGATCTGATCGCCGCGCGCGCCAAGCTCAAGCCTACCCATGCGGAGCGCAC 416
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TYPE: nucleic acid
STRANDEDNESS: single
CCGCGCCGAGGTGAAGTTCGAG 3313
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2991

Search completed: April 27, 2006, 00:22:19 Job time: 630.12 secs

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Result
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Maximum Match 100%
Listing first 45 summaries
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Maximum DB
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             Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
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401.5
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seq length: 2000000000
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Match Length
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1806
1 MSEPMTKYRGAAVQAAPVFL......BDKGDAPALRVVAESAAAAQ 346
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1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
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             GenCore version 5.1.7
Copyright (c) 1993 - 2006 Biocceleration Ltd.
          DB
                                                                              A47181
A45070
A43470
A28658
J7C4212
S77025
J7Q1613
J7Q1613
J7Q1613
J7Q1613
J7Q167
S22398
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A47181
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124.5	125	126	126	128	129	129.5	130	130	132.5	133.5	137.5	137.5	139	141.5	141.5
6.9	6.9	7.0	7.0	7.1	7.1	7.2	7.2	7.2	7.3	7.4	7.6	7.6	7.7	7.8	7.8
285	220	280	257	294	576	293	440	292	271	284	294	292	302	292	264
12	2	N	N	N	N	N	N	N	N	N	Ŋ	N	N	N	N
S58240	A84673	T28684	C69264	AB0115	G72277	G75274	T43198	G83608	H83195	AD3275	G71949	E64558	A72510	C87275	T36488
hypothetical prote	probable nitrilase	hypothetical prote	conserved hypothet	probable carbon-ni	NH(3)-dependent NA	nitrilase-related	nitrilase/Fhit pro	probable hydratase	conserved hypothet	beta-ureidopropion	hypothetical prote	conserved hypothet	hypothetical prote	hydrolase, carbon-	probable hydrolase

ALIGNMENTS

Db 248 GGGSSMIFAPDGRTLAPYLPHDAEGLIIADLNMEEIAFAKAINDPVGHYSKPEATRLVLD 307	Qy 249 GGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRPDVTRLLLD 308	QY 189 PSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTPDKEMFLKA 248	RKLKPTHVERTVÞGEGYARDLIVSDTELGRVGALCCWEHLSPLSKYALYSQHEAIHIAAW	Qy 129 RKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAADBQVHVASW 188	Db 68 YSARYYANSLSLDSAEFQRIAQAARTLGIFIALGYSERSGGSLYLGQCLIDDKGQMLWSR 127	Qy 69 FVQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSERAGGSLYMGQAIFGPDGDLIAAR 128		Query Match 48.1%; Score 869; DB 2; Length 356; Best Local Similarity 50.6%; Pred. No. 4.8e-66; Matches 172; Conservative 50; Mismatches 108; Indels 10; Gaps 2;	A;Status: preliminary A;Status: preliminary A;Molecule type: protein A;Residues: 1-33 <nag> A;Cross-references: UNIPARC:UPI0000175E31 C;Superfamily: nitrilase (carbon-nitrogen hydrolase) C;Keywords: hydrolase</nag>	tle: A novel nitr ference number: S cession: \$13860	A; CTOSS-TETETENCES: UNIFKUI: FZUYSU; UNIVUUUUJ3514; GB: UIJ317; NIU: 9Z16ZUZ; FIIN: A; NOte: Sequence extracted from NCBI backbone (NCBIN:122081, NCBIP:122082) R; Nagasawa, T.; Mauger, J.; Yamada, H. Eur. J. Biochem. 194, 765-772, 1990	A;Accession: A4/181 A,Status: preliminary A;Molecule type: DNA A;Residues: 1-356 <kob></kob>	R;Kobayashi, M; Izui, H; Nagasawa, T.; Yamada, H. Proc. Natl. Acad. Sci. U.S.A. 90, 247-251, 1993 A;Title: Nitrilase in biosynthesis of the plant hormone indole-3-acetic acid from indole A;Reference number: A47181; MUID:93126352; PMID:8419930 A;Contents: JM3 A;Contents: JM3	nitrilase (EC 3.5.5.1), arylacetone-specific - Alcaligenes faecalis C;Species: Alcaligenes faecalis C;Date: 21-Sep-1993 #sequence revision 18-Nov-1994 #text_change 31-Dec-2004 C.Accession: Ad7181, 313860

```
RESULT 2

A45070

A45070

nitrilase - Rhodococcus rhodochrous
C;Species: Rhodococcus rhodochrous
C;Species: Rhodococcus rhodochrous
C;Species: Rhodococcus rhodochrous
C;Accession: A45070
R;Kobayashi, M.; Komeda, H.; Yanaka, N.; Nagasawa, T.; Yamada, H.
J. Biol. Chem. 267, 20746-20751, 1992
A;Title: Nitrilase from Rhodococcus rhodochrous Jl. Sequencing and overexpression of the A;Reference number: A45070; MUID:93015976; PMID:1400390
A;Contents: Jl
A;Accession: A45070
A;Contents: J1
A;Accession: A45070
A;Status: preliminary
A;Molecule type: DNA; protein
A;Residues: 1-366 <KOB>
A;Cross-references: UNIPROT:003217; UNIPARC:UPI000016FF36; GB:D11425; NID:9216933; PIDN
A;Note: sequence extracted from NCBI backbone (NCBIN:116039, NCBIP:116040)
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
                                                                                         RESULT 3

A43470

A143470

A1iphatic nitrilase - Rhodococcus rhodochrous

C;Species: Rhodococcus rhodochrous

C;Date: 10-Jun-1993 #sequence_revision 18-Nov-1994 #text_change:
C;Accession: A43470

R;Kobayashi, M; Yanaka, N.; Nagasawa, T.; Yamada, H.
Biochemistry 31, 9000-9007, 1992

A;Title: Primary structure of an aliphatic nitrile-degrading enz.
A;Reference number: A43470; MUID:93003039; PMID:1390687

A;Contents: K22

A;Accession: A43470

A;Status: preliminary

A;Status: preliminary
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A;Molecule type: DNA; protein
A;Residues: 1-383 <KOB>
A;Residues: 1-383 <KOB>
A;COBS-references: UNIPROT:Q02068; UNIPARC:UPI0000130516; GB:D12583; NID:g216931;
A;Note: sequence extracted from NCBI backbone (NCBIN:114184, NCBIP:114185)
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
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C;Species:
C;Date: 10-
C;Accession
R;Stalker,
J. Biol. Ch
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J. Biol. Chem. 263, 6310-6314, 1988
A;Title: Purification and properties of a nitrilase specific A;Reference number: A28658; MUID:88198177; PMID:2834373
A;Accession: A28658
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A;Residues: 1-349 <STA>
A;Cross-references: UNIPROT:P10045; UNIPARC:UP1000013051A;
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nitrilase (BC 3.5.5.1) - Klebsiella oza
C;Species: Klebsiella ozaenae
C;Date: 10-Sep-1999 #sequence_revision
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YAADEQVHVASWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVL
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                                                                                                                                                                                       IRRRKLKPTRFÉRELFGEGDGSDLQVAQTSVGRVGÁLNCAENLÓSLNKFÁLAÁEGEQIHI
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                                                                                          MFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRPDVT
                                                                                                                          SAWP-FTL--GSPVLVGDSIG-AINQVYAAETGTFVLMSTQVVGPTGIAAFEIEDRYNPN
                                                                                                                                                                                                                        AARRKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKXAMYAADEQVHV 185
                            RLLLD--RRPAORVVTLD---
                                                         QYL--GGGYARIYGPDMQLKSKSLSPTEEGIVYAEIDLSMLEAAKYSLDPTGHYSRPDVF
                                                                                                                                                         ASWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKV--LVDTPDKE
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SVSINROROPAVSEV-IDSNGDEDPRAACEP---DEGD
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Pred. No. 2.6e-62;
                                                                                                                                                                                                                                                                                                                                                                                          Score 616; DB 1; I
Pred. No. 1.4e-44;
54; Mismatches 113;
                              ----AAFEPQNEDKGD
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PIDN

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nitrilase (EC 3.5.5.1) - Synechocystis sp. (strain PCC 6803)
N;Alternate names: protein sl10784
C;Species: Synechocystis sp.
A;Variety: PCC 6803
C;Date: 25-Apr-1997 #sequence_revision 25-Apr-1997 #text_change 31-Dec-2004
C;Accession: S77025
C;Accession: S77025
R;Kaneko, T.; Sato, S.; Kotani, H.; Tanaka, A.; Asamizu, E.; Nakamura, Y.; Miyajima, N.;
O, K.; Okumura, S.; Shimpo, S.; Takeuchi, C.; Wada, T.; Watanabe, A.; Yamada, M.; Yasuda
                                                                                                                                                                                                                                                                                                                RESULT 6
S77025
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(;Species: Comamonas testosteroni
C;Date: 14-Nov-1995 #sequence_revision 08-Feb-1996 #text_change 31-Dec-2004
C;Accession: JC4212; PC4056
R;Levy-Schil, S.; Soubrier, F.; Crutz-Le Coq, A.M.; Faucher, D.; Crouzet, J.;
Gene 161, 15-20, 1995
Gene 161, 15-20, 1995
A;Title: Aliphatic nitrilase from a soil-isolated Comamonas testosteroni sp.:
A;Reference number: JC4212; MUID:95369726; PMID:7642130
A;Reference number: S74322; MUID
A;Accession: S77025
A;Status: nucleic acid sequence
A;Molecule type: DNA
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C;Superfamily: nitrilase (carbon-nitrogen
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A;Residues: 154-162;295-302;323-340 <LE2>
A;Cross-references: UNIPARC:UPI0000175B32; UNIPARC:UPI0000175B33; UNIPARC:UPI0000175B34
C;Comment: This enzyme is active on adiponitrile and cyanovaleric acid.
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A; Residues: 1-354 < LEV>
                                                                                                    A; Title: Sequence analysis of the genome
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFSKNFLPLGSGNTAIISNTGEILAS-IPQDAEGIAVAEIDLNQIIYGKWLLDPAGHYS
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                                                                                                                                                                                                                                                                                                                                                                                                     TPGFLSLTFDQSEHVPVKKIGEQTNHFISYEDLHEDKMDMLTIPPRRV
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                                                             MUID:97061201;
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                   not shown;
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                   translation
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C;Genetics:
A;Gene: Cht
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Kuperfamily: notrilase (carbon-nitrogen hydrolase)
C;Keywords: carbon-oxygen lyase; glycoprotein; hydro-lyase
C;Keywords: carbon-oxygen lyase; glycoprotein; hydro-lyase
F;286/Binding site: carbonydrate (Asn) (covalent) #status;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cyanide hydratase (EC 4.2.1.66) - imperfect fungus (Gloe Cyspecies: Gloeocercospora sorghi C; Date: 30-Sep-1993 #sequence_revision 30-Sep-1993 #text C; Accession: JQ1613 # D. Biochem. Biophys. Res. Commun. 187, 1048-1054, 1992 Biochem. Biophys. Res. Commun. 187, 1048-1054, 1992 A; Title: Cloning and properties of a cyanide hydratase chieference number: JQ1613; MUID:92412068; PMID:1382413 A; Accession: JQ1613
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C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Note: the nucleotide C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: UNIPROT:P32964; C;Comment: This enzyme converts HCN
                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Residues: 1-368 < WAN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: DNA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Residues: 1-346 < KAN>
                                                                                                                                                                                                                                   Matches
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Best Local
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  122
                    124 LIAARRKLKPTHAERTVFGEGDG-SHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAADEQ 182
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                                                                                            64 AWGMRFVQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSERAGGSLYMGQAIFGPDGD 123
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VINHRRKIKPTHVEKLVYGDGSGDSFEPVTQTEIGRLGQLNCWENMNPFLKSLAVARGEQ
                                                                            LQSLPMLKAYRENSIAMDSSEMRRIRAAARDNQIYVSIGVSEIDHATLYLTQVLISPLGD
                                                                                                                                                                               PMTKYRGAAVQAAPVFLDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYPFWIWLGAP
                                                                                                                                                     PINKYKAAVVTSEPVWENLEGGVVKTIEFINEAGKAGCKLIAFPEVWIPGYPYWWWKVNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FPGSMV--GQIFADQMEV---TMRHHALESGCFVINATGWLTAEQ-KLQITTDEKMHQAL
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                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                 31.1%;
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                                                                                                                                                                                                                               Score 562; DB 2; I
Pred. No. 5.7e-40;
O; Mismatches 124;
                                                                                                                                                                                                                                                                                                                                                                                                        UNIPARC: UPI0000128C2E; to formamide.
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A; Map position: (A; Introns: 44/1; A; Introns: 44/1; C; Superfamily: n: C; Keywords: hydro
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R;D'Angelo, M.; Vezzi, A.; Modesto, D.; Pigazzi, M.; Valle, G.; Mewes, H.W.; Rudd, submitted to the Protein Sequence Database, April 2000 A;Reference number: Z25017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nitrilase (EC 3.5.5.1) 3 [imported] - Arabidopsis thaliana N;Alternate names: protein T10D17.110 C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 02-Jun-2000 #sequence revision 02-Jun-2000 #text_change 31-Dec-2004 C;Date: 02-Jun-2001 #sequence revision 02-Jun-2000 #text_change 31-Dec-2004 C;Accession: T49148; T52261; T52264
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A;Title: Differential regulation of an auxin producing
A;Reference number: Z24515; MUID:8022831; PMID:8022831
A;Accession: T52264
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A;Experimental source: cultivar Columbia
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A; Residues: 1-346 < DAN>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Molecule type: DNA
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;Superfamily: nitrilase (carbon-nitrogen hydrolase)
;Keywords: hydrolase
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Best Local :
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                                                                                              73
                                                                                                                                               63
                                                                                                                                                                                             20
                                                                                                                                                                                                                                    3 EPMTKYRGAAVQAAPVFLDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYPFWIWLGA
                                           GSLYMGQAIFGPDGDLIAARRKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHI 168
                                                                                                                                               PAWGMRF --
YTLYCTALFFSPQGQFLGKHRKVMPTSLERCIWGQGDGSTIPVYDTPIGKIGAAICWENR
                                                                                              --RGFRFGLAVGVHNEEGRDEFRNYHASAIKVPGPEVERLAELAGKNNVHLVMGAIEKDG
                                                                                                                                                                                           DESSTVRVTIVQSSTVYNDTPATLDKAEKFIVEAASKGAKLVLFPEAFIGGYP-----
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                                                                                                                                                                                                                                                                                               Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cultivar Columbia
                                                                                                                                                                                                                                                                                                                    25.9%;
                                                                                                                                                                                                                                                                                          ; Score 468.5; ; Pred. No. 4.5e 65; Mismatches
                                                                                                                                          -VQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSERAG
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                                                                                                                                                                                                                                                                                                                    4.5e-32;
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A;Introns: 44/1; 104/1; 202/1; C;Superfamily: nitrilase (carbo C;Keywords: hydrolase
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Species: Arabidopsis thaliana (mouse-ear cress)
(;Date: 02-Jun-2000 #sequence vision 02-Jun-2000 #text_change 31-Dec-2004
C;Accession: T49147; T52260; T52263
R;D'Angelo, M.; Vezzi, A.; Modesto, D.; Pigazzi, M.; Valle, G.; Mewes, H.W. submitted to the Protein Sequence Database, April 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Proc. Natl. Acad. Sci. U.S.A. 91, 6649-53, 1994
A;Title: Differential regulation of an auxin-producing
A;Reference number: Z24515; MUID:8022831; PMID:8022831
A;Accession: T52263
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Map position: 3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: UNIPARC:UPI0000001AE2; EMBL:U38845; PIDN:AAB05221.1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Molecule type: DNA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Experimental source:
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A;Accession: T49147
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Best Local
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                                                                                                                                                                                                                                                                                                                                      121;
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                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                            -RGFRFGLAVGVHNEEGRDEFRKYHASAIHVPGPEVARLADVARKNHVYLVMGAIEKEGY 131
                                                                                                                                                                                          AWGMRF----
PLSKYAMYAADEQVHVA----
                                               TLYCTVLFFSPQGQFLGKHRKLMPTSLERCIWGQGDGSTIPVYDTPIGKLGAAICWENRM 191
                                                                                        SLYMGQAIFGPDGDLIAARRKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQ 169
                                                                                                                                                                                                                                                                                       PMTKYRGAAVQAAPVFLDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYPFWIWLGAP
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                                                                                                                                                                                                                                         PSTTVRVTIVOSSTVYNDTPATIDKAEKYIVBAASKGAELVLFPEGFIGGYP-----
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                                                                                                                                                                                                                                                                                                                                      Conservative
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(carbon-nitrogen hydrolase)
                                                                                                                                                                                                                                                                                                                                                           25.9%;
                                                                                                                                                                                       ----VQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSERAGG 109
                                                                                                                                                                                                                                                                                                                                      50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Columbia
                                                                                                                                                                                                                                                                                                                                                           Score 467; DB 2;
Pred. No. 6.1e-32;
---SWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVL
                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                 Length 346;
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                                                                                                                                                                                                                                                                                                                                      Gaps
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  222
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N;Alternate names: T10D17, 90
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 13-Jan.1995 #sequence revision 13-Jan.1995 #text_change 31-Dec-2004
C;Accession: S31969; T49146; T52258
R;Bartlling, D.; Seedorf, M.; Schmidt, R.C.; Weiler, E.W.
submitted to the EMBL Data Library, September 1992
A;Description: Arabidopsis thaliana nitrilases are encoded by a two-member gene A;Reference number: S31969
A;Molecule type: mRNA
A;Residues: 1-339 cBAR>
A;Residues: 1-339 cBAR>
A;Residues: 1-339 cBAR>
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$31969
nitrilase (EC 7
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A;Introns: 37/1; 97/1; 195/1;
C;Superfamily: nitrilase (carh
C;Keywords: hvdroloo
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A;Residues: 1-339 <DNA
A;Residues: 1-339 <DNA
A;Cross-references: UNIPARC:UPI000001444; EMBL:AL353865; GSP
A;Experimental source: cultivar Columbia; BAC clone T10D17
R;axriling, D.; Seedorf, M.; Schmidt, R.C.; Weiler, E.W.
Proc. Natl. Acad. Sci. U.S.A. 91, 6021-55, 1994
A;Title: Molecular characterization of two cloned nitrilases
A;Reference number: Z24514; MUID:8016109; PMID:8016109
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A;Experimental source: cultivar Landsberg erecta
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A; Residues: 1-339 <BA2>
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                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                        Local Similarity
les 119; Conser
                                         181
  196
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                                                                                                                                                                VHNEEGRDEFRKYHASAIKVPGPEVEKLAELAGKNNVYLVMGAIEKDGYTLYCTALFFSP
                                       EQVHVA-----SWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMI 233
                                                                                                       DGDLIAARRKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAAD
                                                                                                                                                                                                                                                TIVRATIVQASTVYNDTPATLEKANKFIVEAASKGSELVVFPEAFIGGYPRGFRFGLGVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.5.5.1) [similarity] - Arabidopsis
IELYCAPTADGSKEWQSSMLH
                                                                                   QGQFLGKHRKLMPTSLERCIWGQGDGSTIPVYDTPIGKLGAAICWENRMPLYRTALYAKG
                                                                                                                                                                                                          AW----GMRFVQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSERAGGSLYMGQAIFGP
                                                                                                                                                                                                                                                                                            TKYRGAAVQAAPVFLDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYP--FWIWLGAP
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                                                                                                                                                                                                                                                                                                                                                                                                                                             (carbon-nitrogen hydrolase)
                                                                                                                                                                                                                                                                                                                                      25.7%; Score 464; DB 2; 34.6%; Pred. No. 1.1e-31; tive 54; Mismatches 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 289/1
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-IAIEGGCFVLSACQFC---LR
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nitrilase (EC 3.5.5.1) 2 [imported] - Arabidopsis thaliana (Species: Arabidopsis thaliana (mouse-ear cress) C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 20-Oct-2000 #sequence_revision 20-Oct-2000 #text_ch C;Accession: T52259 E;Hillebrand, H.; Bartling, D.; Weiler, E.W. R;Hillebrand, H.; Bartling, D.; Weiler, E.W. Plant Mol. Biol. 36, 89-99, 1998 Plant Mol. Biol. 36, 89-99, 1998 Plant Mol. Biol. 36, 89-99, 1998 A;Title: Structural analysis of the nit2/nit1/nit3 gene clu A;Fitle: Structural analysis of the nit2/nit1/nit3 gene clu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Residues: 1-339 <HIL>
A;Cross-references: UNIPROT:O04907; UNIPARC:UPI00000A5899;
A;Experimental source: cultivar Columbia
C;Genetics:
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C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
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ARAKLYFDXVGHYSRPDVLHLTVNEHP-KKPVTFISKVEKAEDD
                                                                                                                                                                                                                                                                      IELYCAPTADGSKEWQSSMLH
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                                                            ALAKAAADPAGHYSRPDVTRLLLDRRPAQRVVTLDAAFEPQNED
                                                                                                                                      KDFPDHPDYLFTDWYDDKEPDSIVSQGGSVIISPLGQVLAGPNFES-EGLITADLDLGDV
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                                                                                                                                                                                                   KVLVDTP-----DKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMI
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Pred. No. 1.3e-31;
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   336
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R;Bartling, D.; Seedorf, M.; Mithoefer, A.; Weiler, E.W. Eur. J. Biochem. 205, 417-424, 1992
A;Tit.be: Cloning and expression of an Arabidopsis nitrilase A;Reference number: S22398; MUID:92209532; PMID:1555601
A;Accession: S22398
A;Molecule type: mRNA
A;Residues: 1-346 <BAR>

nitrilase (EC 3.5.5.1) - Arabidopsis thaliana (Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 13.-Jan-1995 #sequence_revision 13-Jan-1995 C;Accession: S22398 R;Bartling, D.; Seedorf, M.; Mithoefer, A.; Weiler,

#text_change

31-Dec-2004

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A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Molecule type: DNA
A;Residues: 1-339 <BRA>
A;Cross-references: UNIPROT:p32962; UNIPARC:UPI000016DA4C; EMBL:U38845; PIDN:AAB05220.1
A;Experimental source: cultivar Columbia
C;Genetics:
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A;Introns: 37/2; 97/1; 19
C;Superfamily: nitrilase
C;Keywords: hydrolase
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A;Title: Differential regulation of an auxin-producing
A;Reference number: Z24515; MUID:8022831; PMID:8022831
A;Accession: T52262
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R; Bartel, B.; Fink, G.R.
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Matches 118; Conserv
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AWGMRF------VQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSERAGG 109
                                                                    DGDLIAARRKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAAD 180
                                                                                                       VHNEEGRDEFRKYHASAIKVPGPEVEKLAELAGKNNVYLVMGAIEKDGYTLYCTALFFSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLSKYAMYAADEQVHVA-----SWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVL 222
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                                    QQFLGKHRKLMPTSLERCIWGQGDGSTIPVYDTPIGKLGAAICWENRMPLYRTALYAKG
                                                                                                                                     AW---GMRFVQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSERAGGSLYMGQAIFGP 120
                                                                                                                                                                                                    TKYRGAAVQAAPVFLDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYP--FWIWLGAP 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LLVADIDLGMIALAKAAADPAGHYSRPDVTRLLLDRRPAQRVVTLDAAFEPQNED 328
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -RGFRFGLAVGVHNEEGRDEFRKYHASAIHVPGPEVARLADVARKNHVYLVMGAIEKEGY
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                                                                                                                                                                        TIVRATIVQASTVYNDTPATLGKANKFIVEAATKGSELVVFPEAFIGGYPRGFRFGLGVG
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itrilase (carbon-nitrogen
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   -SWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMI
                                                                                                                                                                                                                                      54;
                                                                                                                                                                                                                                    Score 456; DB 2; L
Pred. No. 5.1e-31;
54; Mismatches 128;
                                                                                                                                                                                                                                                                                                                      hydrolase)
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                                                                                  nitrilase (EC 3.5.5.1) 4B - common tobacco (;Species: Nicotiana tabacum (common tobacc C;Date: 24-Mar-1999 #sequence_revision 24-N C;Accession: T03739 R;Tsunoda, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nitrilase-like protein [imported] - 1
(;Species: Oryza sativa (rice)
(;Date: 20-Oct-2000 #sequence_revisic
(;Accession: T52566
R;Chiba, R.; Dohmoto, M.; Yamaguchi,
submitted to the EMBL Data Library, N
submitted to the EMBL Data Library
A;Reference number: 215044
A;Accession: T03739
A;Status: preliminary; translated
A;Molecule type: mRNA
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A;Reference number: Z26008
A;Accession: T52266
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                        GB/EMBL/DDBJ
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A;Cross-references: UNIPROT:Q9SXX6; UNIPARC:UPI000009C92A; A;Experimental source: cultivar Nipponbare C;Genetics: A;Gene: ONIT4 A;Gene: ONIT4 (carbon-nitrogen hydrolase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Date: 20-Oct-2000 #sequence_revision 20-Oct-2000
                                                                                                                                                                                                                                                                                    DEQVHVASWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYYLAS---CATVS----PEM 232
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DVVGHYARPEVLSLVVNDQP-HLPVSFTSAAEKTTAAKSDSTA
                                                      DPAGHYSRPDVTRLLLDRRPAQRVVTLDAAFEPQNEDKGDAPA 334
                                                                                                                   VFTGLGEEPSPDTVVCPGG--SVIISPSGEVLAGPNYE-GEALITADLDLGEIVRAKFDF 317
                                                                                                                                                                                                                              GIEIYCA--PT-----ADSRQVWQASMTHIALEGGCFVLSANQFCRRKDYPPPPEY 260
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                                                                                                                                                                       IKV-LVDTPDKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAA 291
                                                                                                                                                                                                                                                                                                                                                 PLGRYLGKHRKLMPTALERIIWGFGDGSTIPVYDTPLGKIGALICWENKMPLLRTÄLYGK 211
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Pred. No. 6.3e-28;
7; Mismatches 137;
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for nitrilase-like
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#text_change

31-Dec-2004

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A;Residues: 1-348 <TSU>
A;Cross-references: UNIPROT:Q42966; UNIPARC:UPI000009F332; EMBL:D83078
A;Experimental source: strain SR1; tissue-type leaf
C;Genetics:
C;Genetics:
A;Gene: TNIT4B
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
Search completed: April 27, 2006, 01:01:07 Job time: 27.336 secs
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                                           314
                                                          295 GHYSRPDVTRLLL 307
                                                                                      259 TEDLTPDS--IVCAGG--SVIISPSGAVLAGPNYE-GEALISADLDLGEIARAKFDFDVV 313
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GHYARPEVLSLIV 326
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    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
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Copyright (c) 1993 - 2006 Biocceleration Ltd.
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Q5EG61 PSEFL
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Q6RWE4 9ZZZZ
Q6RWS3 9ZZZZ
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R Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
A McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
Mathur E., Kretz P.L., Burk M.J., Short J.M.;
"Exploring nitrilase sequence space for enantioselective catalysis.";
A Mathur E., Miller M., Short J.M.;
"Exploring nitrilase sequence space for enantioselective catalysis.";
Appl. Environ. Microbiol. 70:2429-2436(2004).
R F. Appl. Environ. Microbiol. 70:2429-2436(2004).
R EMBL; AY487438; AAR97385.1; -; Genomic DNA.
GO; GO:0018762; F:aliphatic nitrilase activity; IEA.
GO; GO:0018762; F:hydrolase activity, acting on carbon-nitrog. ..; IEA.
R GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. ..; IEA.
R GO; GO:0016812; N/CN hydratase.
InterPro; IPR0003010; Ntlse/CNhydtse.
R InterPro; IPR0003010; Ntlse/CNhydtse.
R Fiam; PF00795; CN hydrolase; 1.
R PROSITE; PS00263; CCM HYDROLASE; 1.
R PROSITE; PS00263; NITRIL_CHT_2; 1.
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RA Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
RA Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
RA Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective catalysis.";
RA Appl. Environ. Microbiol. 70:2429-2436(2004).

RR LAPIL Environ. Microbiol. 70:2429-2436(2004).

DR GO; GO:0016807; Faliphatic nitrilase activity; IEA.
GO; GO:0016807; Faliphatic nitrilase activity; IEA.
GO; GO:0016807; Finitrogen compound metabolism; IEA.

DR GO; GO:0016807; Pinitrogen compound metabolism; IEA.

InterPro; IPR003010; NITRICON hydracase.

InterPro; IPR000312; N/CN hydracase.

InterPro; IPR002312; PII GlnB UMP S.
PFam; PR00795; CN hydrolase; I.

DR PROSITE; PS00920; NITRIL CHT 1; 1.

PROSITE; PS00921; NITRIL CHT 1; 1.

PROSITE; PS00921; NITRIL CHT 2; UNKNOWN 1.

KW Hydrolase.
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ORFNames=BD7753;
         uncultured organism. unclassified; enviro
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RA Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
RA Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
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RA Mathur E., Kretz P.L., Burk M.J., Short J.M.;
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REMBL; RY487543; AAR97490.1; -; Genomic DNA.
DR RMBL; AY487543; AAR97490.1; -; Genomic DNA.
DR RMBL; AY487543; AAR97490.1; -; Genomic DNA.
DR GO: GO:0018762; Fraliphatic nitrilase activity; IEA.
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DR GO: GO:0018762; Fraliphatic nitrilase activity, acting on carbon-nitrog. ..; IEA.
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ORFNames=BD5217;
NUCLEOTIDE SEQUENCE.

PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

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Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective catalysis.";

Appl. Environ. Microbiol. 70:2429-2436(2004).
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A McChi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
A McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.
Mathur E., Kretz P.L., Burk M.J., Short J.M.,
"Exploring nitrilase sequence space for enantioselective catalysis.
Mathur E., Kretz P.L., Burk M.J., Short J.M.,
"Exploring nitrilase sequence space for enantioselective catalysis.
A Mathur E., Kretz P.L., Burk M.J., Short J.M.,
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GO; GO:0018762; F:aliphatic nitrilase activity; IE;
GO; GO:0016810; F:hydrolase activity, acting on ca;
GO; GO:0006807; P:nitrogen compound metabolism; IE;
InterPro; IPR000132; N/CN hydratase.
InterPro; IPR003010; NL18E/CNhydtse.
InterPro; IPR003010; NL18E/CNhydtse.
PFOM; PF00795; CN hydrolase; 1.
PROSITE; PS500523; CN HYDROLASE; 1.
PROSITE; PS500920; NITRIL CHT_1; 1.
PROSITE; PS00921; NITRIL CHT_2; 1.
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                                                                                                                                                                                                                                                                                    Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M., Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K., A. McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M., A. Mathur E., Kretz P.L., Burk M.J., Short J.M.,

"Exploring nitrilase sequence space for enantioselective catalysis.";

"Exploring nitrilase sequence space for enantioselective catalysis.";

"Exploring nitrilase sequence space for enantioselective catalysis.";

"Exploring nitrilase activity; IEA.

BO; GO:0016810; F.; AR97443.1; -; Genomic DNA.

GO; GO:0
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SEQUENCE
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SEQUENCE
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RESULT 8
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  Query Match
Best Local
                                                                                                             EMBL; AL617740; CAB92892.1; -; Genomic_DNA.
GO; GO:0016810; F:hydrolase activity, acting on ca
GO; GO:0006807; P:nitrogen compound metabolism; IE
InterPro; IPR00013; N/CN hydratase.
InterPro; IPR003010; Ntlse/CNhydtse.
Pfam; PF00795; CN hydrolase; 1.
PROSITE; PS500563; CN HYDROLASE; 1.
PROSITE; PS50920; NITRIL_CHT_1; 1.
PROSITE; PS00921; NITRIL_CHT_2; UNKNOWN_1.
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SEQUENCE
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                                                                                                                                                                                                                                                                                                                                     Gaillard M., Werlen C., Vallaeys T., Vorhoelter F.J., Provan der Meer J.R.;
Submitted (DEC-2003) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN-strain RR21;
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Bacteria; Proteobacteria; Gammaproteobacteria; Pseudomonadales;
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  Score 1127;
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     17; DB 2;
4.5e-78;
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EMBL; AY487427; AAS97374.1; -; Genomic DNA.

EMBL; AY487427; AAS97374.1; -; Genomic DNA.

EMBL; AY487427; AAS97374.1; -; Genomic DNA.

GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. ..; IEA.

GO; GO:001687; F:hydrolase.

GO; GO:0016810; F:hydrolase.

FROSITE; PS00920; NITRIL_CHT_1; 1.

PROSITE; PS00921; NITRIL_CHT_2; 1.

PROSITE; PS00921; NITRIL_CHT_2; 1.

RWA HORLEADALE.

NITRIL_CHT_2; 1.

RWA HORLEADALE.

RADDI SAVERALE.

RADDI SAVE
                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 212; Conserv
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                                                     MRFVQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSERAGGSLYMGQAIFGPDGDLIA 126
                                                                                                                                KYRGAAVQAAPVFLDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYPFWIWLGAPAWG
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Pred. No. 6.7e-78;
4; Mismatches 72;
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A Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
A McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
A Mathur E., Kretz P.L., Burk M.J., Short J.M.;
"Exploring nitrilase sequence space for enantioselective catalysis.";
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FLKAGGGFAMIFGPDGRALAEFLPETEEGLLVADIDLGMIALAKAAADPAGHYSRPDVTR
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Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

A Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,

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"Exploring nitrilase sequence space for enantioselective catalysis.";

Appl. Environ. Microbiol. 70:2429-2436(2004).

REMBL; AY487463; AAR97410.1; -; Genomic DNA.

RE GO; GO:0018762; F:aliphatic nitrilase activity; IEA.

RGO; GO:0018762; F:aliphatic nitrilase activity; IEA.

RGO; GO:0016810; P:hydrolase activity, acting on carbon-nitrog...; IEA.

RGO; GO:0016807; P:nitrogen compound metabolism; IEA.

RGO; GO:0006807; P:nitrogen compound metabolism; IEA.

RGO; GO:0006807; P:nydrolase; 1.

RR FROSITE; PS00920; NITRIL_CHT_1; 1.

RROSITE; PS00920; NITRIL_CHT_2; UNKNOWN_1.
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PUDMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

R PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

A Robertson D.E., Chapilin J.A., DeSantis G., Podar M., Madden M. Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong A. McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Kal Mathur E., Kretz P.L., Burk M.J., Short J.M.;

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ORFNames=BD5295;
   uncultured organism.
unclassified; environmental
NCBI_TaxID=155900;
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"Exploring nitrilase sequence space for enantioselective catalysis.",

Appl. Environ. Microbiol. 70:2429-2436(2004).

EMBL, AY487545; AAR97492.1; -, Genomic DNA.

GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. . .;

GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. . .;
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RESULT.

OSYUM5.
ID VUM5.
ID VUM5.
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ID V
                                           X PubMed=15466710; DOI=10.1073/pnas.0406410101;
A Ishikawa J., Yamashita A., Mikami Y., Hoshino Y., Kurita A Ishikawa J., Yamashita A., Mikami Y., Hoshino Y., Kurita A Shiba T., Hattori M.;
A Shiba T., Hattori M.;
I "The complete genomic sequence of Nocardia farcinica IFN Proc. Natl. Acad. Sci. U.S.A. 101:14925-14930(2004).

Proc. Natl. Acad. Sci. U.S.A. 101:14925-14930(2004).

R EMBL; Ap006618; BAD58116.1; -; Genomic DNA.

R GO; GO:0016810; F.hydrolase activity, acting on carbon-r R GO; GO:0016807; P:nitrogen compound metabolism; IEA.

InterPro; IPR000132; N/CN hydratase.

InterPro; IPR0003010; N/CN hydratase.

InterPro; IPR00233; PII GlnB UMP S.

R Ffam; PF00795; CN hydrolase; 1.

R PROSITE; PS00201; NITRIL CHT 1; 1.

R PROSITE; PS00921; NITRIL CHT 2; 1.

R PROSITE; PS00921; NITRIL CHT 2; 1.

R PROSITE; PS00921; NITRIL CHT 2; 1.

R PROSITE; PS00921; NITRIL CHT 2; 1.

R PROSITE; PS00926; PII GLNB UMP; UNKNOWN 1.
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Best Local Sim
Matches 209;
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                            PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUCLEOTIDE SEQUENCE.
STRAIN=IFM 10152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUCLEOTIDE
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25-OCT-2004 (TrEMBLrel.
25-OCT-2004 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q5YUM5;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hydrolase.
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=37329;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RPDVYRVLFNKIPAKRIEHFNL---PLDEQAGEEP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TPDKEMFLKAGGGFAMI FGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYS
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ilarity 62.4%;
Conservative 4
      36091 MW;
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Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
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Pred. No. 1.4e-73;
Mismatches 79;
      D24921911BD0C2BB CRC64;
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                                                                      188 WPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTPDKEMFIK 247
|||||:|| |||||| |:: |||| ::| :: || | | |
187 WPSFSVYRGAAYALGPEVNTGAARQYAVEGQCFVLSPCAVIDEAGVELFCDTPAKRELLL 246
                                                                                                          307
                                  308 DRRPAQ--RVVTLDAAFEPQNEDKGDAPALR 336
                                                                                                                                              DPRPRSVVRQVALSVASPAESADDAE-PAVR 336
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Search completed: April 27, 2006, 01:00:10 Job time: 156.523 secs

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Total number of hits satisfying chosen parameters:
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Maximum Match 100%
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geneseqD1980s:*
geneseqD1990s:*
geneseqD2000s:*
geneseqD2001s:*
geneseqD2002s:*
geneseqD2003as:*
geneseqD2003bs:*
geneseqD2004s:*
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(c) 1993 - 2006 Biocceleration Ltd.
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1119.760 Million cell updates/sec
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Query Match Length	BB	ID	ption
–	1806	100.0	346	4.	AAE05488	Aae05488 Nitrilase
N	1806	100.0	346	7	411	4117 Protein
ω	1806	100.0	346	œ	ADH36218	
4.	1806	•	346	ω	ADG93917	7
v	1806		346	œ	ADI62516	Adī62516 Nitrilase
6	1806	100.0	346	œ	ADI64637	7
7	1464	81.1	341	7	ADC23767	Protein
œ	1464	81.1	341	œ	ADH35868	
9	1464	81.1	341	œ	ADG93569	Adg93569 Nitrilase
10	1464	٠	341	œ	ADI62166	σ
11	1464		341	œ	ADI64287	Adi64287 Nitrilase
12	1209	66.9	348	7	ADC23749	Adc23749 Protein s
13	1209	•	348	œ	ADH35850	0
14	1209	66.9	348	œ	ADG93551	
15	1209	٠	348	œ	ADI62148	Adi62148 Nitrilase
16	1209	٠	348	œ	ADI64269	Adi64269 Nitrilase
17	1165	64.5	353	7	ADC23945	u
18	1165	•	353	œ	ADH36046	046
19	1165	64.5	353	œ	ADG93747	Adg93747 Nitrilase
20	1165	٠	353	œ	ADI62344	Adi62344 Nitrilase
21	1165	•	353	œ	ADI64465	U,
22	1155	٠	353	7	ADC23965	Ŋ
23	1155	٠	353	œ	ADH36066	990
24	1155	64.0	353	œ	ADG93767	Adg93767 Nitrilase

45	44	43	42	41	40	39	38	37	36	ω G	34	υ U	32	31	30	29	28	27	26	7
1125	1125	1125	1125	1130	1130	1130	1130	1130	1132.5		1132.5		1132.5	1148	1148	1148	1148	1148	1155	++0,0
62.3	62.3	62.3	62.3	62.6	62.6	62.6	62.6	62.6	62.7	62.7	62.7	62.7	62.7	63.6	63.6	63.6	63.6	63.6	64.0	
345	345	345	345	354	354	354	354	354	358	358	358	358	358	333	333	333	333	333	353	,,,,
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ADI62466	ADG93868	ADH36168	ADC24067	ADI64355	ADI62234	ADG93637	ADH35936	ADC23835	ADI64423	ADI62302	ADG93705	ADH36004	ADC23903	ADI64603	ADI62482	ADG93883	ADH36184	ADC24083	ADI64485	TO TO TO TO TO
Ad162466	Adg93868	Adh36168	Adc24067	Adi64355	Adi62234	Adg93637	Adh35936	Adc23835	Adi64423	Adi62302	Adg93705	Adh36004	Adc23903	Ad164603	Adi62482	Adg93883	Adh36184	Adc24083	Ad164485	
Nitrilase	Nitrilase	Chemical	Protein s	Nitrilase	Nitrilase	Nitrilase	Chemical	Protein s	Nitrilase	Nitrilase	Nitrilase	Chemical	Protein s	Nitrilase	Nitrilase	Nitrilase	Chemical	Protein s	Nitrilase	

ALIGNMENTS

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RESULT 1
AAE05488
                                                                                                            WPI; 2001-465211/50.
N-PSDB; AAD11166.
                                                                                                                                                                                                                                                Nitrilase; enantiomer; alpha-substituted carboxylic acid; stereoselective; hydrolysis; amino nitrile; cyanohydrin.
                                                                                                                                                                                                                                                                     Nitrilase protein #1.
                                                                                                                                                                   29-DEC-1999; 99US-0173609P
07-DEC-2000; 2000US-0254414P
                                                                                                                                                                                        29-DEC-2000; 2000WO-US035555.
                                                                                                                                                                                                                                   Unidentified.
                                                                                                                                                                                                                                                                                                 AAE05488;
                                                                                                                                 Madden M, Weiner DP,
                                                                                                                                                                                                        05-JUL-2001.
                                                                                                                                                                                                                     WO200148175-A2.
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                                                                                                                                                                                                                                                                                                              AAE05488 standard; protein; 346 AA.
                                                                                                                                               (MADD/)
                                                                                                                                                (DIVE-) DIVERSA CORP. (MADD/) MADDEN D.
                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                 Chaplin JA;
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Producing alpha-substituted carboxylic acid enantiomers by contacting aldehyde or ketone with cyanide, ammonia compound or its salt or amine and hydrolyzing the resulting amino nitrile or cyanohydrin with

Claim 29; Page 84-85; 87pp; English.

The present invention relates to methods for producing an enantiomerically pure alpha-substituted carboxylic acid. The method involves contacting an alcehyde or ketone with a cyanide containing compound and an ammonia-containing compound or an ammonium salt or amine, and stereoselectively hydrolysing the resulting amino nitrile or cyanohydrin intermediate with a nitrilase or a polypeptide having nitrilase activity. The present sequence is a nitrilase protein #1

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                                                                                               WPI; 200
N-PSDB;
                                            Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and food additive.
                                                                                                                               Short
                                                                                                                                         Madden
                                                                                                                                                                                            21-JUN-2001; 2001US-0300189P
30-JUL-2001; 2001US-0309006P
22-JAN-2002; 2002US-0351336P
                                                                                                                                                                                                                                                                                                                          enzyme; nitrilase; nitrile; cyanohyrdin;
enantiomer; chiral medicine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                      Claim
                                                                                                                                                                                                                                                            03-JAN-2003.
                                                                                                                                                                                                                                                                                                                                                                               18-DEC-2003
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                                                                                                                                                                                                                                                                                 WO2003000840-A2
                                                                                                                                                                                                                                                                                                      Unidentified
                                                                                                                                                                                                                                                                                                                                                       Protein sequence (SeqID 384) exhibiting nitrilase activity.
                                                                                                                                                               (DIVE-) DIVERSA CORP. (MADD/) MADDEN D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                 2003-201417/19.
DB; ADC24116.
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                     SEQ ID NO 384; 560pp; English.
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Burk M;
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Pred. No. 5.7e-172;
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This invention

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Best Local Similarity
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                                                     Weiner D,
Mcquaid J,
  WPI; 2004-142708/14
                                                                                                                                                                                                                                                                                                                27-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                     WO2003098187-A2
                                                                                                                                                                                                                                                                                                                                                                                                                             Unidentified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chemical process monitoring; biochemical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chemical process monitoring-related nitrilase protein sequence SeqID384.
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                                                                                                                                                                                                15-MAY-2002; 2002US-0380737P
                                                                                                                                                                                                                                                     15-MAY-2003; 2003WO-US015639
                                                                                                                                       (DIVE-) DIVERSA CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               throughput
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                                                                                  Chaplin JA,
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Matches 346
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                reactant comprising a cyanide or a reactant converted to cyanide.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 346 AA;
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enantioselective tra
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15-MAY-2002; 2002US-00146772
                                                          15-MAY-2003;
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                                                                                                          Atorvastatin; (R)-ethyl 4-cyano-3-hydroxybutyrate; (R)-ethyl 4-cyano-3-hydroxybutyric acid; epichlorohydrin; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric acid; ethyl-
                                                                                                                                                                                                                                                                                                                                     Nitrilase polypeptide #192
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present invention relates to a method for preparating an atorvastatin intermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid with a polypeptide having nitrilase activity, converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters. Atorvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia. The present sequence represents a nitrilase polypeptide obtained from an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglutaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13-JUN-2002; 2002US-0389317P
28-JUN-2002; 2002US-0392944P
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                                                              DKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRP
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The invention describes an isolated or recombinant polypeptide (I) comprising amino acids having a sequence at least 50 % identical to a sequence (S1) available in electronic form (EC) from the following web site fip.seqdata.uspto.gov/sequence.html?DocID=2004014195, or its variants, having one or more mutations at residue 55 Lys, Gly or Glu, at residue 60 glutamic acid, at residue 111 Ser, their combinations or fragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3-hydroxybutyric acid, hydrolysing a nitrile to a carboxylic acid, hydroxybacid molecule or a chiral amino acid molecule; producing an alpha-hydroxy acid molecule or a chiral amino acid molecule; producing an (S)-ethyl 4-cyano-3-hydroxybutyric acid, producing an (R)-mandelic acid or (S)-mandelic acid, producing an (R)-mandelic acid or (S)-mandelic acid derivative, modifying a molecule; and for identifying a modified compound. The inventive method is useful for monitoring or determining % enantiomeric excess or % diasteromeric excess. (I) is useful in the production of food additives and drug intermediates. This is the amino acid sequence of a nitrilase of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-DEC-1999; 99US-0173609P.
07-DEC-2000; 2000US-0254414P.
28-DEC-2000; 2000US-00751299.
21-JUN-2001; 2001US-0300189P.
30-JUL-2001; 2001US-0309066P.
22-JAN-2002; 2002US-0351336P.
15-MAY-2002; 2002US-00146772.
09-SEP-2002; 2002US-00241742.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (R)-ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis; carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile moiety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S)-ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-phenyl lactic acid derivative; R)-phenyl lactic acid derivative; % enantiomeric excess; % diasteromeric excess; food additive; drug intermediate; nitrilase.
Sequence
                                                                                                                                                                                                                                                                                                                                               Claim 46;
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Short JM,
This invention relates to nitrilases and the nucleic acids that encode these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and alighatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also
                                                                                                                                                                                                                                                                                                                                                                          Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21-JUN-2001; 2001US-0300189P
30-JUL-2001; 2001US-0309006P
22-JAN-2002; 2002US-0351336P
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                                                                  Monitoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted to cyanide or a reactant that generates a cyanide or a material that car converted to cyanide.
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                              N-PSDB; ADG93568
                                                      WPI; 2004-090637/09
                                                                                                     Desantis G,
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09-SEP-2002; 2002US-00241742.
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                                                                                                                                                                                   Atorvastatin; (R)-ethyl 4-cyano-3-hydroxybutyrate; (R)-ethyl 4-cyano-3-hydroxybutyric acid; epichlorohydrin; (R)-ethyl 4-cyano-3-hydroxybutrile; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric mixed hyperlipidaemia; homozygous familial hypercholesterolaem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This invention is related to a novel isolated or recombinant nucleic acid encoding a protein having nitrilase activity. Nitrilase's are capable of converting nitrile's directly to carboxylic acids and have great potential for use in industrial chemical processes. The isolated nitrilase proteins of the invention have increased activity and stability at increased pH and temperature when compared to those conventionally used. In addition, the nucleic acid of the invention is useful for screening enantioselective transformation. The present sequence is that of a nitrilase enzyme of the invention.
                                                                                                                                                                                                                                                                                Nitrilase polypeptide #17.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 341 AA;
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 13-JUN-2002; 2002US-0389317P.
28-JUN-2002; 2002US-0392944P.
                                              13-JUN-2003; 2003WO-US018840
                                                                              24-DEC-2003
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                                                                                                                                        Unidentified
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tive 28; Mismatches 33;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present invention relates to a method for preparating an atorvastatin intermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate (R)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid with a polypeptide having nitrilase activity, converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters. Atorvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia. The present dyslipidaemia and homozygous familial hypercholesterolaemia. The present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglutaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
                               Nitrilase seq id 18
                                                                   22-APR-2004
                                                                                                                                 ADI64287 standard;
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(R) -ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis;
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                                                                                                                                                                                                                                                                       cc site ftp.seqdata.uspro.gov/sequence.html?DocID=20001.1195, or its
cvariants, having one or more mutations at residue 55 Lys, Gly or Glu, at
cresidue 60 glutamic acid, at residue 111 Ser, their combinations or
cresidue 60 glutamic acid, at residue 111 Ser, their combinations or
cresidue 60 glutamic acid, for: producing an (R)-ethyl 4-cyano-3-
cc hydroxybutyric acid, hydrolysing a nitrile to a carboxylic acid,
hydroxybutyric acid, hydrolysing an aminonitrile moiety; producing a
cc hydrolysing cyanohydrin moiety or an aminonitrile moiety; producing a
cc chiral alpha-hydroxy acid molecule or a chiral amino acid molecule;
producing an (S)-ethyl 4-cyano-3-hydroxybutyric acid, producing an (R)-
mandelic acid or (S)-mandelic acid; producing (S)-phenyl lactic acid
derivative or an (R)-phenyl lactic acid derivative; modifying a molecule;
and for identifying a modified compound. The inventive method is useful
for monitoring or determining % enantiomeric excess or % diasteromeric
excess. (I) is useful in the production of food additives and drug
intermediates. This is the amino acid sequence of a nitrilase of the
                                                                                                                                                                                              Matches
                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29-DEC-1999; 99US-0173609P.
07-DEC-2000; 2000US-0254414P.
28-DEC-2000; 2000US-00751299.
21-JUN-2001; 2001US-0300189P.
30-JUL-2001; 2001US-0309066P.
22-JAN-2002; 2002US-00146772.
09-SEP-2002; 2002US-00241742.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention describes an isolated or recombinant polypeptide (I) comprising amino acids having a sequence at least 50 % identical to a sequence (S1) available in electronic form (EC) from the following web sequence (S1) available in electronic form (EC) from the following web
                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 46; SEQ ID NO 34; 105pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Novel isolated or recombinant polypeptide having useful in production of food additives.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB; ADI64286.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile moiety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S) ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-mandelic acid; (S)-mandelic acid; (S)-mandelic acid derivative; R)-phenyl lactic acid derivative; % enantiomeric excess; (R)-phenyl lactic acid derivative; % enantiomeric excess;
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DGDLIAARRKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAAD 180
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                                                 GSPAWGMRFVQRYFENSLVRGSKQWNAIADAARRHRMTVVVGFSERAGGSLYMGQAIFGP
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                                                                                                                                                                                            81.1%; Score 1464; DB 8;
81.7%; Pred. No. 1.1e-137;
tive 28; Mismatches 33;
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           Query Match
Best Local 9
                                                                        these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and alighatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catingtes, have broad substrate specificity and are capable of chiral differentiation. This polypeptide is a protein sequence that exhibits nitrilase activity of the invention.
                                                                                                                                                                                                                                                                                               Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and food additive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-JUN-2001; 2001US-0300189P.
30-JUL-2001; 2001US-0309006P.
22-JAN-2002; 2002US-0351336P.
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Short JM,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Protein sequence
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                                                    Sequence
                                                                                                                                                                                                                                             This invention
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           Similarity
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           66.9%;
67.1%;
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Score 1209; DB 7;
Pred. No. 3.9e-112;
12; Mismatches 69;
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Matches

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This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a nitrilase protein which may be used in the method of the

73;

ID NO 16;

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                                                                                                                                                                                                                                                                                             rountcoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted to cyanide or a reactant that generates a cyanide or a material that can converted to cyanide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         chemical process monitoring; biochemical process monitoring; cyanide; high throughput system; enzyme.
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Mcquaid J,
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This invention is related to a novel isolated or recombinant nucleic acid encoding a protein having nitrilase activity. Nitrilase's are capable of converting nitrile's directly to carboxylic acids and have great potential for use in industrial chemical processes. The isolated
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09-SEP-2002;
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KW antill
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PN WO200
XX Unide
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XX Unide
PN W0210
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Best Local (
                                                                                                                                                                                                                                                               Atorvastatin; (R)-ethyl 4-cyano-3-hydroxybutyrate; (R)-ethyl 4-cyano-3-hydroxybutyric acid; epichlorohydrin; (R)-ethyl 4-cyano-1-hydroxybutyric acid; epichlorohydrin; 3-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric acid; mixed hyperlipidaemia; homozygous familial hypercholesterolaemia; antilipaemic; enzyme.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nitrilase proteins of the invention have increased activity and stabil at increased pH and temperature when compared to those conventionally used. In addition, the nucleic acid of the invention is useful for screening enantioselective transformation. The present sequence is the of a nitrilase enzyme of the invention.
                                                                                                                   13-JUN-2002; 2002US-0389317P
28-JUN-2002; 2002US-0392944P
                                                                                                                                                            13-JUN-2003; 2003WO-US018840
                                                                                                                                                                                       24-DEC-2003
                                                                                                                                                                                                                  WO2003106415-A2
                                                                                                                                                                                                                                           Unidentified
                                                                                                                                                                                                                                                                                                                                                                   Nitrilase polypeptide #8.
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                                                               Desantis G,
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Preparation of atorvastatin

comprises catalytic conversion

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Search completed: April 27, 2006, 00:54:58 Job time : 137.766 secs
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Best Local Similarity
Matches 230; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present invention relates to a method for preparating an atorvastatin intermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid with a polypeptide having nitrilase activity, converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters. Atorvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia. The present dyslipidaemia and homozygous familial hypercholesterolaemia. The present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hydroxyglutaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 41; SEQ ID NO 16; 253pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence represents a nitrilase polypeptide obtained environmental sample.
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                                                                                                                                                                            TRLLLDRRPAQRVVTLDAAFEPQNEDKGDAPALRVVAESAAAA 345
                                                                                                                     TRLLFNSAPANRVEYINPASGP-TESLKDMGKMQMEAEQQKAA 343
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Maximum Match 100%
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1: /cgn2_6/ptodata/1

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Gapop 10.0 , Gapext 0.5
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        MSEPMTKYRGAAVQAAPVFL.....EDKGDAPALRVVAESAAAAQ 346
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/cgm2_6/ptodata/1/iaa/6_COMB.pep:*
/cgm2_6/ptodata/1/iaa/H_COMB.pep:*
/cgm2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
/cgm2_6/ptodata/1/iaa/RE_COMB.pep:*
/cgm2_6/ptodata/1/iaa/RE_COMB.pep:*
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        GenCore version 5.1.7 (c) 1993 - 2006 Biocceleration
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  US-08-690-493-1
US-09-806-876A-2
US-09-823-373-5
US-09-823-373-14
US-08-447-702-5
US-08-447-702-5
US-08-447-702-5
US-08-448-7040
US-10-105-294B-2
US-09-621-976-5160
US-09-621-976-7700
US-09-621-976-7700
US-09-902-540-11611
US-09-863-339A-1
US-09-863-339A-1
US-09-863-339A-2
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US-09-918-328-740-12181
US-09-918-328-740-1501
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US-09-949-016-6533
US-09-949-016-6533
US-09-949-016-5130
US-09-583-110-5130
US-09-583-110-5130
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US-09-252-991A-22107
US-09-252-991A-226229
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Sequence 1, Appli Sequence 2, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 7440, Appli Sequence 10443, Appli Sequence 11992, Appli Sequence 14601, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 4728, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 5, Appli Sequence 7130, App Sequence 7130, App Sequence 22107, A Sequence 22107, A Sequence 22107, A Sequence 22107, A Sequence 22107, A Sequence 22107, A Sequence 22107, A Sequence 26229, A
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	26, Appl	27198, F	32525, I	11585, /	1, Appl:	23838, 1	22124, 1	11251, 1			70, Appl	Appli	5, Appl:	<pre>6, Appl:</pre>	5, Appl:	33071, 2	14001, /	23300, /

ALIGNMENTS

RESULT 1 US-08-690-493-1

Length 344	Query Match 51.7%; Score 933; DB 1; Best Local Similarity 55.2%; Pred. No. 7.5e-98;
	; OTHER INFORMATION: Xaa is Met or a deletion US-08-690-493-1
	FEATURE:
	1-1
	; ORGANISM: Gordona terrae
	SOURCE:
	MOLECULE TYPE: protein
	OGY: 1:
	amino acid
	; SEQUENCE CHARACTERISTICS:
	ORMATION FC
	; TELEFAX: (212) 382-2124
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	TRATION NUMBER: 32.7
	: NAME: Davidson, Clifford M
	, PATODING CAIR: OF TOOL TOOL
	ATTON NO
	; PRIOR APPLICATION DATA:
	; FILING DATE: 31 JUL-1996
	; APPLICATION NUMBER: US/08/690,493
	LICATION
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	SYSTEM:
	: COMPUTER: IBM PC compatible
	· MEDITIM TYDE: Floory diek
	COMPITTED DEADARIE FORM:
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	,,,
	T: 1140 Avenue of the Americas
•	; ADDRESSEE: Steinberg, Raskin & Davidson, P.C
	33
Gette	: NUMBER OF SECUENCES: 5
	r: Yu, Fujio
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	5872000
	; Sequence 1, Application US/08690493
	US-U8-690-493-1

Matches 170; Conservative

52;

Mismatches

86;

Indels

<u>,,</u>

Gaps

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GENERAL INFORMATION:

APPLICANT: Ress-Loeschke, Marion

APPLICANT: Friedrich, Thomas

APPLICANT: Hauer, Bernhard

TITLE OF INVENTION: A process for preparing chiral carboxylic acids

TITLE OF INVENTION: from nitriles using a nitrilase or microorganisms

TITLE OF INVENTION: which comprise a gene for the nitrilase

TITLE OF INVENTION: which comprise a gene for the nitrilase

CURRENT EPILICATION NUMBER: US/09/806,876A

CURRENT APPLICATION NUMBER: US/09/806,876A

CURRENT FILING DATE: 2001-05-21

PRIOR APPLICATION NUMBER: Germany/19848129.2

PRIOR FILING DATE: 1998-10-19

SOFTWARE: WordPerfect version 6.1

SEQ ID NO 2

LENGTH: 356
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Patent No. 6869783
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                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT ORGANISM: Alcaligenes faecalis
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   248
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                                                                                                                                                                     RKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAADEQVHVASW 188
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                                 GGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRPDVTRLLLD 308
                                                                     PSFSLYSEQAHALSAKVNWAASQIYSVEGQCFTIAASSVVTQETLDMLEVGEHNAPLLKV
                                                                                                                                                 RKLKPTHVERTVFGEGYARDLIVSDTELGRVGALCCWEHLSPLSKYALYSQHEAIHIAAW
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                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                            48.1%; Score 869; DB 2; Length 356; 50.3%; Pred. No. 1.7e-90;
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APPLICANT: Gavagan, John
APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of a Gene for Nitrilase from
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
SEQ ID NO 5
LENGTH: 369
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US-09-823-373-14
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US-09-823-373-5
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                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                              Sequence 14, Application US/09823373 Patent No. 6870038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 44.7%; Score 807; DB 2; Le Best Local Similarity 46.6%; Pred. No. 2.2e-83; Matches 160; Conservative 52; Mismatches 127;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 5, Application US/09823373 Patent No. 6870038
APPLICANT: Payne, Mark
APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of a Gene for Nitrilase from
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
                                                                                                                    APPLICANT: Chauhan, Sarita APPLICANT: DiCosimo, Robe
                                                                                                                                                                                                                                                                                                       306
                                                                                                                                                                                                                                                                                                                                           306 LLDRR---PAQRVVTLDAAFEPQNEDKGDAPALRVVAESAAAA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ASWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTPDKEMF 245
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                                                                                                                  Robert
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                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION:
TITLE OF INVENTION:
Patent NO. 5629190
TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
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SOFTWARE: Microsoft Office 97
SEQ ID NO 14
LENGTH: 369
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CURRENT FILLING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT
                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compactible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/447,702
                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
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APPLICANT:
                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                   STATE: V
                                                                                                                                                                                                                         CITY: Alexandria
                                                                                                                                                                                                                                            STREET:
CLASSIFICATION:
                                                                                                                                                                                                                                                              ADDRESSEE:
                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local Similarity
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Cerbeleaud, Edith
Levy-Schil, Sophie
                                                                                                                                                                                                                                                                                                                                                                                                                                    Crouzet, Joel
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                                                                                                                                                                                                                                                Вох
                 23-MAY-1995
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46.6%; Pred. No. 2.2e-83;
vative 52; Mismatches 127
                                                                                                                                                                                                                                                1404
                                                                                                                                                                                                                                                                                                                    Expression Cassettes and Host Microorganisms Enabling Them to be Obtained, and Method of Converting Nitriles to Carboxylates by Means of Said Polypeptides
                                                                                                                                                                                                                                                                                                                                                                                             Polypeptides Possessing A Nitrilase Activity, DNA Sequence Coding for Said
                                                                                                                                                                                                                                                                DOANE,
                                                                                                                                                                                                                                                                SWECKER & MATHIS
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Patent No. 5
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                         APPLICANT: CROUZET, Joel
TITLE OF INVENTION: POLYPE
TITLE OF INVENTION: EXPRES
TITLE OF INVENTION: TO BE
TITLE OF INVENTION: CARBOY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 354 amino acid
                                                                                                                                                                                                                                                                            APPLICANT: CERBELEAUD,
APPLICANT: LEVY-SCHIL,
APPLICANT: CROUZET, Joe
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REFERENCE/DOCKET NUMBER: 003
TELECOMMUNICATION INFORMATION:
TELEPHONE: 703-836-6620
TELEPHONE: 703-836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: FR 92
FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
NAME: McGowan, Malcolm K.
REGISTRATION NUMBER: 39,3
                                                                                                                                 NUMBER OF SEQUENCES: 5
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FILING DATE: 10-FEB-1994
PRIOR APPLICATION DATA:
                  STREET: P.O. Box 1404
CITY: Alexandria
STATE: Virginia
COUNTRY: United States
ZIP: 22313-1404
                                                                                                                                                                                                                                                                                                                                        APPLICANT:
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COMPUTER READABLE FORM:
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                                                                                                                 ADDRESSEE: Burns, Doane,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        304 TPGFLSLTFDQSEHVPVKKIGEQTNHFISYEDLHEDKMDMLTIPPRRV 351
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                                                                                                                                                                                                                                                                                                                      Dominique
EAUD, Edith
                                                                                                                                                                             CARBOXYLATES
                                                                                                                                                                         POLYPEPTIDES POSSESSING A NITRILASE
ACTIVITY, DNA SEQUENCE CODING FOR SAID POLYPEPTIDES,
EXPRESSION CASSETTES AND HOST MICROORGANISMS ENABLING
TO BE OBTAINED, AND METHOD OF CONVERTING NITRILES TO
CARBOXYLATES BY MEANS OF SAID POLYPEPTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  32.8%; Score 592.5; DB 1; 39.4%; Pred. No. 7.3e-59;
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                  SEQ
                                                                                                                                                                            Sequence 7440, Application US/09543681A
PATENT NO. 6605709
GENERAL INFORMATION:
APPLICANT: GARY BRETON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 137; Conserv
             TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PROTEUS MIRABII TITLE OF INVENTION: DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 2709.1002-001
CURRENT APPLICATION NUMBER: US/09/543,681A
CURRENT FILING DATE: 2000-04-05
PRIOR APPLICATION NUMBER: US 60/128,706
PRIOR PETILING DATE: 1999-04-09
NUMBER OF SEQ ID NOS: 8344
SEQ ID NO 7440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Crane-Feury, Sharon E
REGISTRATION NUMBER: 36,113
REFERENCE/DOCKET NUMBER: 003025-015
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 836-6620
TELEPAX: (703) 836-2021
INFORMATION FOR SEQ ID NO: 5:
LENGTH: 325
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APPLICATION NUMBER: US 08/194,588
FILING DATE: 10-FEB-1994
APPLICATION NUMBER: FR 9209882
FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
NAME: Crane-Feury, Sharon E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY: linear MOLECULE TYPE: protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION: 435
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COMPUTER: II
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66 GMRFVQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSERAGGSLYMGQAIFGPDGDLI 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11 AAVQAAPVFLDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYPFWIWLG-----APAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10 AAVQAAPVFMNLEATVDKTCKLIAEAASMGAKVIGFPEAFIPGYPYWIWTSNMDFTGMWW
                                                                                                                                                                                                                                                                                                                                                                                                                         TPDKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ASWPAFVPKGAVSSRVSSSVCASTNAMHQIISQFYAISNQVYVIMSTNLVGQDMIDMIGK 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AV-----LFKNAIEIPSKEVQQISDAAKKNGVYVCVSVSEKDNASLYLTQLWFDPNGNLI
                                                                                                                                                                                                                                                                                                                         TPGFLSLTFDQSEHVPVKKIGEQTNHFISYEDLHEDKMDMLTIPPRRV 351
                                                                                                                                                                                                                                                                                                                                                         RPDVTRLLLDRR---PAQRV---VTLDAAFEPQNEDKGD---APALRV 337
                                                                                                                                                                                                                                                                                                                                                                                             DEFSKNFLPLGSGNTAIISNTGEILAS-IPQDAEGIAVAEIDLNQIIYGKWLLDPAGHYS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GKHRKFKPTSSERAVWGDGDGSMAPVFKTEYGNLGGLQCWEHALPLNIAAMGSLNEQVHV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ASWPSF-----SLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   354 amino acids
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Pred. No. 7.3e-59;
1; Mismatches 133;
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; FEATURE:
; OTHER INFORMATION:
US-10-105-294B-2
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US-10-105-294B-2
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                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: DE 101 14 999.9
PRIOR FILING DATE: 2001-03-26
NUMBER OF SEQ ID NOS: 14
SOFTWARE: PatentIn version 3.1
SEQ ID NO 2
LENGTH: 315
TYPE: PRT
ORGANISM: ARTIFICIAL SEQUENCE
                                                                                                                                                               Query Match
Best Local Similarity
Matches 78; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2, Application US/10105294B Patent No. 6800464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILE REFERENCE: 220024USOX
CURRENT APPLICATION NUMBER: US/10/105,294B
CURRENT FILING DATE: 2000-08-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: WERNER, MARKUS
APPLICANT: SIEWANN-HERZBERG, MARTIN
TITLE OF INVENTION: D-CRADAMOYLASE from Arthrobacter crystallopoietes
FILE REFERENCE: 220024USX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: DRAUZ, KARLHI APPLICANT: MAY, OLIVER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT ORGANISM: Proteus mirabilis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    224
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        118 SL----QKHRKLHAFEHPVICSGD--QYTVFDTPWGIKMGILICWDNNLVENARATALLG 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    270 C-AIEDDMVVTDIDLTLLPESTGRRWLTGR--RPELYQILTTRQ 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         267 LPETEEGLLVADIDLGMIALAKAAADPAGHYSRPDVTRLLLDRR 310
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71
                                          77
                                                                                  25
                                                                                                                       26 VEKAIGLIEQAAKODVRLIAFPE-----TWIPGYPFWIWLGAPAWGMRFVQRYFEN 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63 A-----QQVYALSEKLADSASLKSIKQKAQQYAMAIGVGLIERDNNNNLYNTWVVCMPDG 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  64 AWGMRFVQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSER-AGGSLYMGQAIFGPDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            85;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                     SIVRGSKQWQALADAARRHGMHVVAGYSE-RAGGSLYMGQAIFGPDGDLIAARRKLK-PT 134
                                                                               VARLIALLEEAASQGAELVVFPELTLTTFFPRTWFEEGDF-----
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SM--PNDDVAPLFERAKDLGVGFYLGYAELTSDEKRYNTSILVNKHGDIVGKYRKMHLPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----IYAVEGGCYVLASCATVSPEMIKVLVDTPDKEMFLKAGGGFAMIFGPDGRALAEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BOMMARIUS, ANDREAS
SYLDATK, CHRISTOPH
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                                                                                                                                                                    Conservative
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                                                                                                                                                                                                                                                                       SYNTHETIC DNA
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                                                                                                                                                               ; Score 150; DB 2; ]; Pred. No. 2.7e-08; 42; Mismatches 107;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -- EQVHVASWPSFSLYRGMAYALGPEVNTAASQ------
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                                                                                                                                                                                                       Length 315;
                                                                                                                                                                 Indels 108;
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                                                                                                                                                                 Gaps
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128
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US-09-621-976-5160
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          NUMBER OF SEQ ID NOS: 14342
SEQ ID NO 10443
LENGTH: 337
TYPE: PRT
ORGANISM: Klebsiella pneumoniae
                                                                                                                 GENERAL INFORMATION:
APPLICANT: GATY BREATON et. al
APPLICANT: GATY BREATON et. al
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO KLEBSIELLA
TITLE OF INVENTION: PNEUMONIAE FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 2709.2004001
CURRENT PELICATION NUMBER: US/09/489,039A
CURRENT FILING DATE: 2000-01-27
PRIOR APPLICATION NUMBER: US 60/117,747
PRIOR FILING DATE: 1999-01-29
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Matches
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SEQ ID NO 5160
                                                                                                                                                                                                                                                                                                       Sequence 10443, Application US/09489039A Patent No. 6610836
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Dumas Milne Edwards, J.B.
APPLICANT: Jobert, S.
APPLICANT: Giordano, J.Y.
TITLE OF INVENTION: ESTs and Encoded Human
FILE REFERENCE: GENSET.054PR2
-09-489-039A-10443
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/621,976
CURRENT FILING DATE: 2000-07-21
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Homo sapiens
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           172 ---RWP--EVYRSL---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             184 HVASWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTPDKE
                                                                                                                                                                                                                                                                                                                                                                                                                                106 LLAKYRKIHLFDIDVPGKITFQESKTLSPGDS--FSTFDTPYCRVGLGICYD 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124 LIAARRKL-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        209 MFTHLLSLQAGAYQNSVFVAAAGKSGFEDGHHMIGGSAVAAPSGEILAKAAGEGDEVVVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65 WGMRFVQRYFENSLVRGSKQWQALADAARRHGMHVVAG-YSERAGGSLYMGQAIFGPDGD 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5 MTKYRGAAVQAAPVFLDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYPFWIWLGAPA 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -GAKYFPEYAEK--IPG-ESTQKLSEVAKECSIYLIGGSIPEEDAGKLYNTCAVFGPDGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MTSFRLALIQLQISSIKSD-NVTRACSFIREAATQGAKIVSLPECFNSPY------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -ADIDLGMIALAKAAADPAGHYSRPDVTRLLLDRR 310
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8.1%;
ilarity 27.3%;
Conservative 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -KPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWE 166
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Pred. No. 3.4e-08;
8; Mismatches 70;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 175;
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Best Local S
Matches 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 21992
LENGTH: 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION: APPLICANT: Marc J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 21992, Application US/09252991A Patent No. 6551795
                                                                                                                                                                                                                                                                                                                                                                                       Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
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CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Marc J. Rubenfield et al.
TITLE OF INVENTION: NUCLEIC ACID AMINO ACID SEQUENCES RELATING
TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          163
                                                                                                                              136
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    169
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      115 QAIFGPDGDLIAARRKLKPTHAERTVFGE---GDGSHLAVHDTAIG-RLGALCCWEH--I 168
  232 MIKVLVDTPDKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAA 291
                                              193 VTNGNMDPY--
                                                                                                                                                                        129 RKLKPTH---AERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAADEQVHV 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         266 IVSEAF-SYEDTIVYÄELDLGLLTMS-----TGRRWIHGRRPELYGIMCESQGYER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           222 GWLMRWLPSR--AHDNGFFILFSNG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                202 GPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTPDKEMFLKAGGGFAMIFGPDGR
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                                                                                                                                                                                                                                                            81 GSKQWQALAD-----AARRHGMHVVAGYSERAGGSLYMGQAIFGPDGDLIAAR 128
                                                                                                                                                                                                                                                                                                   45 DTAHNLERALAAIADCA-ADTELVVFPETHLTGFP-----SEDNIA-
                                                                                                                                                                                                                                                                                                                                           21 DLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYPFWIWLGAPAWGMRFVQRYFENSLVR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          59 WLGAPAWGMRFVQRYFENSL---VRGSKQWQALADAARRHGMHVVAGYSERAGGS-LYMG 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      84; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QPLSKYAMYAAD-----FSLYRGMAYAL
                                                                                                                                                                                                                    ----ALAEPLDGPTVSAVQRVARERNVSVAIGIAEADAGRYYNTTLLIAPDGIAL---
                                                                                      ASWPSFSLYRGMAYALGPEVNTA-----ASQIYAV------EGGCYVLASCATVSPE
                                                                                                                                -KYRKTHLWASDRGIFTPGDRNATALWNGI--RVGLLVCFDIEFPESARALGQLGAELII 192
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                                                                                                                                                                                                                                                                                                                                                                                     Conservative
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1998-02-18
                                                                                                                                                                                                                                                                                                                                                                                     7.5%; Score 135.5; DB 2; 22.9%; Pred. No. 1.1e-06; ative 38; Mismatches 103;
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23.5%; Pred. No. 1.3e-07;
ative 56; Mismatches 128;
                                              -GPTHRTAIMARAMENQAYAVMVNRVGHGDGG-----
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207

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APPLICANT: Dumas Milne Edwards, J.B.
APPLICANT: Jobert, S.
APPLICANT: Jobert, S.
APPLICANT: Goordano, J.Y.
TITLE OF INVENTION: ESTs and Encoded Human Properties GENSET.054PR2
FILE REFERENCE: GENSET.054PR2
CURRENT APPLICATION UNMBER: US/09/621,976
CURRENT FILING DATE: 2000-07-21
VOMBER OF SEQ ID NOS: 19335
SOFTMARE: Patent.pm
SEQ ID NO 7670
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US-09-902-540-14601
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US-09-621-976-7670
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PRIOR EILING DATE: 2000-07-10
NUMBER OF SEQ ID NOS: 16825
SEQ ID NO 14601
LENGTH: 267
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                                                                    Matches
                                                                                                          Query Match
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TYPE: PRT
ORGANISM: Homo sapiens
-09-621-976-7670
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                                                                                                                                                -09-902-540-14601
                                                                                                                                                                                                                                                                                                         APPLICANT: Slater, Steven C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococccus xanthus Genome Sequences and Uses Thereof
FILE REFERENCE: 38-10(15849)B
CURRENT APPLICATION NUMBER: US/09/902,540
CURRENT FILING DATE: 2001-07-10
                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Goldman, APPLICANT: Hinkle,
                                                                                                                                                               TYPE: PRT
ORGANISM: Myxococcus xanthus
                                                                 Local Similarity
mes 67; Conserv
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  21 DLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYPFWIWLGAPAWGMRFVQRYFENSLVR 80 | | : | : | : | : | : | : | : |
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Hinkle, Gregory J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -GAKYFPEYAEK--IPG-ESTQKLSEVAKECSIYLIGGSIPEEDAGKLYNTCAVFGPDGT 105
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                                                                 Conservative
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                                                                                  7.0%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.3%; Score 131.5; DB 2; 27.8%; Pred. No. 1.1e-06;
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                                                             35;
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                                                                                Score 126; DB 2;
Pred. No. 1.1e-05;
                                                                 Mismatches 110;
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                                                                                                      Length 267;
                                                               Indels
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                                                             70;
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                                                             Gaps
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US-09-863-339A-1
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Best Local Similarity
77; Conserv
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NUMBER OF SEQ ID NOS: 13
SOFTWARE: PatentIn version 3.1
SEQ ID NO 1
LENGTH: 501
TYPE: PRT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: Encoding the Photoproterite Reference: 026350-052
CURRENT APPLICATION NUMBER: US/09/863,339A
CURRENT FILING DATE: 2001-05-24
PRIOR APPLICATION NUMBER: JP 2000-154786
PRIOR PILING DATE: 2000-05-25
PRIOR PILING DATE: 2000-05-25
PRIOR APPLICATION NUMBER: JP 2001-133941
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APPLICANT: Matsuda, Tsukasa
APPLICANT: Matsuda, Tsukasa
TITLE OF INVENTION: Photoprotein Derived from Okinawan Squid and Gene
TITLE OF INVENTION: Photoprotein
                     302 V--TRLLLD---
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                                                                                                                                                                                                                                                                                                                                           SKQWQALADAARRHGMHVVAGYSER------AGGS--LYMGQAIFGPDGDLIAAR 128
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                                                                                                                                            SWVNLPPIYQSIQSHSAFARFAKINLLAASVHRLETSTY
                                                                                                                                                                                  SWPSF----SLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTPD 241
                                                                                                                                                                                                                                                                                                         SEMLRTFSCMÅKENDMYMVVNMAGREPCRRATEPECPGDKQLLÝNTNVAFNNEGDVVARY 161
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                                                                                                   KEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRPD 301
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Pred. No. 4.6e-05;
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                                                             ---AEI-----FYFRPD
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217

Gaps

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274

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GENERAL INCORNATION:
GENERAL INCORNATION:
NUTCHEC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
TITLE OF INVENTION: ARRUGINOSA FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 107196.136
CURRENT FILING DATE: 1999-02-18
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR APPLICATION NUMBER: US 60/094,190
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
SEQ ID NO 24644
LENGTH: 349
TYPE: PRT
ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-24644
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Search completed: April 27, 2006, 01:02:21 Job time: 35.448 secs
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US-09-252-991A-24644
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                                                                                                                                                                                                                       219 -CYVLAS-CATVSPBMIKVLVDTPDKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLV 276
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                                                                                                                                                                              QCYLLAAGQGGVHPR-----GRETF-----GHSAIVDFWGRVLAE-RPQGEAVLLA 315
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Listing first 45 summaries
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ALIGNMENTS

RESULT 1

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APPLICANT: Weiner, David P.

APPLICANT: Chaplin, Jennifer A.

APPLICANT: Chaplin, Jennifer A.

TITLE OF INVENTION: METHODS FOR PRODUCING ENANTIOMERICALLY PURE

TITLE OF INVENTION: ALPHA-SUBSTITUTED CARBOXYLIC ACIDS

FILE REFERENCE: DIVER1440-2

CURRENT APPLICATION NUMBER: US/09/751,299

CURRENT FILING DATE: 2000-12-29

PRIOR APPLICATION NUMBER: 60/254,414

PRIOR RILING DATE: 2000-12-07

PRIOR APPLICATION NUMBER: 60/173,609

PRIOR FILING DATE: 2000-12-29

NUMBER OF SEQ ID NOS: 4

SOFTWARE: Patentin Ver. 2.1

SEQ ID NO 2
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Best Local Similarity
Matches 346; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 346
TYPE: PRT
ORGANISM: Unknown Organism
                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION: OTHER INFORMATION:
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                     241
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                                                                                                                                                           121 DGDLIAARRKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAAD
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DKEMFIKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRP
                                                                             EQVHVASWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTP
                                                         EQVHVASWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTP
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                                                                                                                                                                                                                                                                                                                                                                                   100.0%; Score 1806; DB 3; 100.0%; Pred. No. 2.4e-170;
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APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20030124698A1 DIV-013US
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/350,189
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-29
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-29
PRIOR FILING DATE: 2000-12-29
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEG ID NOS: 386
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 384
LENGTH: 346
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US-10-146-772-384
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Matches
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APPLICANT: Weiner
APPLICANT: Chapli:
APPLICANT: Chi, E
APPLICANT: Milan,
APPLICANT: DeSant
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Best Local
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ORGANISM: Unknown
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                                                                                   DKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRP
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DeSantis, Grace
Madden, Mark
Burk, Mark
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Chaplin, Jennifer
Chi, Ellen
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b. US20030124698A1
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PRIOR FILING DATE: 2002-05-15
PRIOR PELICATION NUMBER: US 60/309,006
PRIOR PELICATION NUMBER: US 60/309,006
PRIOR PELICATION NUMBER: US 60/351,336
PRIOR PELICATION NUMBER: US 60/351,336
PRIOR PELICATION NUMBER: US 60/300,189
PRIOR PELICATION NUMBER: US 09/751,299
PRIOR PELICATION NUMBER: US 09/751,299
PRIOR PELICATION NUMBER: US 60/254,414
PRIOR PELICATION NUMBER: US 60/254,414
PRIOR PELICATION NUMBER: US 60/254,414
PRIOR PELICATION NUMBER: US 60/254,414
PRIOR PELICATION NUMBER: US 60/173,609
PRIOR PELICATION NUMBER: US 60/173,609
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SOFTWARE: FastSEQ for Wind
SEQ ID NO 384
LENGTH: 346
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Best Local Similarity
Matches 346; Conserv
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TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040002147A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
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APPLICANT: Weiner, David
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ORGANISM: Unknown
FEATURE:
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DeSantis,
                        DVTRLLLDRRPAQRVVTLDAAFEPQNEDKGDAPALRVVAESAAAAQ 346
                                                                                DKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRP
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DVTRLLLDRRPAQRVVTLDAAFEPQNEDKGDAPALRVVAESAAAAQ
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Milan, Aileen
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Burk, Mark
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198: 386
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346
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RESULT

Sequence 384, Applic Publication No. US20 GENERAL INFORMATION:

Application US/10440523 o. US20040014195A1

Jay

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TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040014195A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2001-07-30
PRIOR PRICING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/351,299
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
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US-10-440-503-384; Sequence 384, Application US/10440503; Publication No. US20040038419A1
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SEQ ID NO 384
LENGTH: 346
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ORGANISM: Unknown
FEATURE:
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Burk, Mark
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Pred. No. 2.4e-170;
; Mismatches 0;
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APPLICANT: Mark J. Burk
APPLICANT: McSantis, Grace
APPLICANT: DeSantis, Grace
APPLICANT: Morgan, Brian
APPLICANT: Zhu, Zoulin
TITLE OF INVENTION: PROCESSES FOR MAKING (R)-ETHYL 4-C
FILE REFERENCE: 09010-270001
CURRENT APPLICATION NUMBER: US/10/461,925
CURRENT FILING DATE: 2003-06-13
PRIOR APPLICATION NUMBER: US 60/389,317
PRIOR APPLICATION NUMBER: US 60/392,944
PRIOR APPLICATION NUMBER: US 60/392,944
PRIOR FILING DATE: 2002-06-18
PRIOR FILING DATE: 2006-28
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SEQ ID NO 384
LENGTH: 346
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APPLICANT:
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APPLICANT: Stege, Justin
TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE PRESENCE (
TITLE OF INVENTION: NITRILES AND/OR CYANIDE
FILE REFERENCE: 09010-900001
CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR FILING DATE: 2002-05-15
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OTHER INFORMATION:
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Local Similarity 100.0%; P
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SEQ ID NOS:
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DeSantis, Grace
Burk, Mark J
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Pred. No. 2.4e-170;
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RESULT 7
US-10-146-772-34
                                                                                       PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILLING DATE: 2001-07-30
PRIOR PELICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILLING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILLING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR FILLING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILLING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
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SEQ ID NO 384
LENGTH: 346
TYPE: PRT
ORGANISM: Unknown
FEATURE:
                SEQ ID NO 34
LENGTH: 341
TYPE: PRT
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Matches
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TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20030124698A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT FILING DATE: 2002-05-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Short, Jay
APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
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                                                                             SOFTWARE: FastSEQ for Windows Version 4.0
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ORGANISM: Unknown
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Burk, Mark
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No. US20030124698A1
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Pred. No. 2.4e-170;
; Mismatches 0;
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; OTHER INFORMATION: Obtained from an environmental sample
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                            DVTRLLLDRRPAQRVVTLDAAFEPQNEDKGDAP 333
                                                                            DKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRP
                                                                                                                                      EQVHVASWDSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTP
                                                                                                                                                                                                                                          GSPAWGMRFVQRYFENSLVRGSKQWNAIADAARRHRMTVVVGFSERAGGSLYMGQAIFGP
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                                                           DKEPLLLAGGGFSMIFGPDGRALAQPLPETEEGLVTAEIDLGAIALAKAAADPAGHYARP
                                                                                                                     EQVHVASWPCFSLYRGMAYALGPEVNTAASQVYAVEGGCYVLASCLVVTPEILKVLIDTP
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DVTRLLLNPRPAARVEALGPRFEVVQSEQAEPP 333
                                                                                                                                                                                EGELIAARRKLKPTHAERTVFGEGDGSHLAVYETGVGRIGALCCWEHIQPLSKYAMYAAN
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Pred. No. 2.1e-136;
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APPLICANT: Burk, Mark
TITLE OF INVENTION: Nitrilases
TITLE REFERENCE: Docket No. US20040002147A1 DIV-013US
FILE REFERENCE: Docket No. US20040002147A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR PILING DATE: 2001-06-21
PRIOR PILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 90/751,299
PRIOR APPLICATION NUMBER: US 99/751,299 ; OTHER INFORMATION: Obtained US-10-241-742-34 PRIOR APPLICATION NUMBER: US 6
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FastSEQ for Windows
SEQ ID NO 34 APPLICANT: Short, J Sequence 34, Application US/10241742 Publication No. US20040002147A1 APPLICANT:
APPLICANT: PRIOR FILING DATE: 2000-12-28 APPLICANT: APPLICANT: LENGTH: 341
TYPE: PRT
ORGANISM: Unknown FEATURE: APPLICATION NUMBER: US 60/254,414 FILING DATE: 2000-12-07 Weiner, David Chaplin, Jennifer Chi, Ellen Milan, Aileen DeSantis, Grace Madden, Mark ID NOS: 386 LSEQ for Windows Version 4.0 Јау from 60/173,609 21 environmental sample

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                                                         ; OTHER INFORMATION: Obtained US-10-440-523-34
                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR PELICATION NUMBER: US 60/351,336
PRIOR PELICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR PELICATION NUMBER: US 60/300,189
PRIOR PELICATION NUMBER: US 60/300,189
PRIOR PELICATION NUMBER: US 99/751,299
PRIOR PELICATION NUMBER: US 60/254,414
PRIOR PELING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR PELING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 1999-12-29
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APPLICANT: Weiner, Dav
APPLICANT: Chaplin, Je
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aile
APPLICANT: DeSantis, G
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Best Local Similarity
Matches 272; Conserv
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Query Match
Best Local Similarity
                                                                                                                                                                   SEQ ID NO 34
                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Burk, Mark
TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040014195A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
                                                                                                                                                                                  NUMBER OF SEQ ID NOS: 386
SOFTWARE: FastSEQ for Windows Version
                                                                                         TYPE: PRT
ORGANISM: Unknown
FEATURE:
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Madden, N.
*k, Mark
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Chaplin, Jennifer
Chi, Ellen
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81.7%; Pred. No. 2.1e-136;
   81.1%;
81.7%;
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   Score 1464; DB 4;
Pred. No. 2.1e-136;
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                   Length
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PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR FILING DATE: 2002-05-15
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FASKISEQ for Windows Version 4.0
SEQ ID NO 34
LENGTH: 341
TYPE: PRT
ORGANIEM: Unknown
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Best Local Similarity
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Publication No.
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APPLICANT:
APPLICANT:
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APPLICANT: Stege, Justin
TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE PRESENCE OF
TITLE OF INVENTION: NITRILES AND/OR CYANIDE
FILE REFERENCE: 09010-900001
                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
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APPLICANT: Chaplin, Jennifer
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                 121 DGDLIAARRKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAAD 180
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                                                                 61 GSPAWGMRFVQRYFENSLVRGSKQWNAIADAARRHRMTVVVGFSERAGGSLYMGQAIFGP
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   EGELIAARRKLKPTHAERTVFGEGDGSHLAVYETGVGRIGALCCWEHIQPLSKYAMYAAN
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No. US20040038419A1
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81.7%; Pred. No. 2.1e-136;
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RESULT 12
US-10-146-772-16
S-10-146-772-16
; Seguence 16, Application US/10146772
; Publication No. US20030124698A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION: Obtained from US-10-461-925-34
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Best Local Similarity
Matches 272; Conserv
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SEQ ID NO 34
LENGTH: 341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: PROCESSES FOR MAKING (R)-ETHYL 4-CYANO-3-HYDROXYBUTYRIC ACID FILE REFERENCE: 09010-270001 CURRENT APPLICATION NUMBER: US/10/461,925 CURRENT FILING DATE: 2003-06-13 PRIOR APPLICATION NUMBER: US 60/389,317 PRIOR APPLICATION NUMBER: US 60/389,317 PRIOR FILING DATE: 2002-06-13 PRIOR PPLICATION NUMBER: US 60/392,944 PRIOR PILING DATE: 2002-06-28 NUMBER: US 60/392,944 PRIOR FILING DATE: 2002-06-28 NUMBER OF SEQ ID NOS: 386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Mark J. Burk
APPLICANT: DeSantis, Grace
APPLICANT: Morgan, Brian
APPLICANT: Zhu, Zoulin
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
ORGANISM: Unknown
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                                                                                                                                                                      DVTRLLLDRRPAORVVTLDAAFEPONEDKGDAP 333
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                                                                                                                                                                                                              DKEPLLLAGGGFSMIFGPDGRALAQPLPETEEGLVTAEIDLGAIALAKAAADPAGHYARP
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81.7%; Pred. No. ...
Tive 28; Mismatches
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Pred. No. 2.1e-136;
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PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR PELICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR PRIOR DATE: 2000-12-28
PRIOR PELICATION NUMBER: US 09/751,299
PRIOR PELICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR PELING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR PELING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FRASTSEQ for Windows Version 4.0
SEQ ID NO 16
LENGTH: 348
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                                                                                  Sequence 16, Application US/10241742 Publication No. US20040002147A1 GENERAL INFORMATION:
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Best Local Similarity
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APPLICANT: Short, Jay
APPLICANT: Weiner, David
APPLICANT: Chaplin, Jenn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
    APPLICANT: Short, Jay
APPLICANT: Weiner, Da
APPLICANT: Chaplin, ChaplicaNT: Chi, Eller
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FILE REFERENCE: DOCKET NO. USCO030124698A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT FILING DATE: 2002-05-15
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ORGANISM: Unknown
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DeSantis,
  Weiner, David
Chaplin, Jennifer
Chi, Ellen
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Burk, Mark
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APPLICANT: DESARTIS, Grace
APPLICANT: Medden, Mark
APPLICANT: Mouth, Mark
APPLICANT: Mouth, Mark
APPLICANT: Mouth, Mark
APPLICANT: Mouth, Mark
APPLICANT: Mouth, Mark
FILE REFERENCE: Docket No. US20040002147A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-2
PRIOR APPLICATION NUMBER: US 60/351,396
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-28
PRIOR FILING DATE: 2000-12-29
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-09
PRIOR FILING DATE: 1999-12-09
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
LENGTH: 748
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US-10-440-523-16
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                                            GENERAL INFORMATION:
APPLICANT: Short, Ja
PAPPLICANT: Weiner,
APPLICANT: Chaplin,
APPLICANT: Chi, Ell
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Best Local Similarity
Matches 230; Conserv
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Publication No. US20040014195A1
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    APPLICANT:
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TYPE: PRT
ORGANISM: Unknown
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                                            Weiner, David
Chaplin, Jennifer
Chi, Ellen
Milan, Aileen
DeSantis, Grace
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APPLICANT: Weiner, David Paul
APPLICANT: Chaplin, Jennifer A
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: DeSantis, Grace
APPLICANT: Burk, Mark J.
APPLICANT: McQuaid, Jeffrey

Chaplin, Jennifer Ann Chi, Ellen

TITLE

APPLICANT:

CANT: Burk, Mark J.
CANT: McQuaid, Jeffrey
CANT: Stege, Justin
OF INVENTION: ASSAYS AND KITS FOR DETECTING
OF INVENTION: NITRILES AND/OR CYANIDE

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PRESENCE

Sequence 16, Application US/10440503
Publication No. US20040038419A1
GENERAL INFORMATION:

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FILE REFERENCE: Docket No. US20040014195A1 DI
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT APPLICATION NUMBER: US/10/146,772
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
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RESULT 15
US-10-440-503-16
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SOFTWARE: FASTSEQ for Windows Version
SEQ ID NO 16
LENGTH: 348
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Best Local Similarity
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PRIOR FILING DATE: 2000-12-20
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR PTILING DATE: 2000-12-07
PTILING DATE: 2000-12-07
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PRIOR FILING DATE: 2000-12-28
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PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2001-06-21
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ORGANISM: Unknown
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION: Obtained from an environmental sample
                                                                             302
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                                                                                                                                                       242
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                                                                                                                                                                                                                                                             183 VHVASWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTPDK
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                                                                                                                                                       EPLILEGGGFTMIYGPDGRPLAKPLPENEEGLLYADIDLGMISMAKAAADPAGHYARPDV
                                                                                                                                                                                                                                   ETIFTRRKLKPTHVERTVFGEGDGSHLCVMDTEIGRVGAMCCWEHLQPLSKYAMYSQDEQ
                                                                                                                                                                                                                                                                                                                                                                                       TRLLLDRRPAQRVVTLDAAFEPQNEDKGDAPALRVVAESAAAA 345
                                                                                                                                                                                           EMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRPDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTSKQFRVAAVQAAPVFLDLEGAISKGISLIBEAASNGAKLIAFPETWIPGYPWWIWLDS
                                                                             TRLLFNSAPANRVEYINPASGP-TESLKDMGKMQMEAEQQKAA
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; FILE REFERENCE: 09010-900001
; CURRENT APPLICATION NUMBER: US/10/440,503
; CURRENT FILING DATE: 2003-05-15
; PRIOR APPLICATION NUMBER: US 60/380,737
; PRIOR FILING DATE: 2002-05-15
; NUMBER OF SEQ ID NOS: 386
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 16
; SEQ ID NO 16
; LENGTH: 348
; TYPE: PRT
; ORGANISM: Unknown
; FEATURE: ORGANISM: Unknown
; OTHER INFORMATION: Obtained from an environmental sample
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Search completed: April 27, 2006, 01:06:08 Job time : 113.956 secs
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Best Local Similarity 67.1%; Pred. No. 4.5e-111;
Matches 230; Conservative 42; Mismatches 69; Indels
                                                                                                                         302 TRLLFNSAPANRVEYINPASGP-TESLKDMGKMQMEAEQQKAA 343
                                                                                       303 TRILLDRRPAQRVVTLDAAFEPQNEDKGDAPALRVVAESAAAA 345
                                                                                                                                                                                        182 IHTASWPSFSLYRGAAYALGPELNNAASOMYAAEGQCFVLAPCATVSKEMIEMLIDDPRK
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Result
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Perfect score:
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Maximum Match 100%
Listing first 45 summaries
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Maximum DB seq length: 200000000
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                                                                                                                                                                                                                                                                                                                                                                                                                                     Database :
                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                             Published Applications AA New:*

1: /SIDS5/ptodata/2/pubpaa/US08 NEW PUB.pep:*

2: /SIDS5/ptodata/2/pubpaa/US06_NEW_PUB.pep:*

3: /SIDS5/ptodata/2/pubpaa/US07_NEW_PUB.pep:*

4: /SIDS5/ptodata/2/pubpaa/US07_NEW_PUB.pep:*

5: /SIDS5/ptodata/2/pubpaa/US10_NEW_PUB.pep:*

6: /SIDS5/ptodata/2/pubpaa/US10_NEW_PUB.pep:*

7: /SIDS5/ptodata/2/pubpaa/US11_NEW_PUB.pep:*

8: /SIDS5/ptodata/2/pubpaa/US10_NEW_PUB.pep:*
Query
Match Length
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Gapop 10.0 , Gapext 0.5
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1806
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                                                                   SUMMARIES
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Sequence 5, Appli	æ	Sequence 19842, A	æ	e 20349	e 822, A	e 5457,	e 5688,	Sequence 7410, Ap	2049,	2095,	e 20688,	e 6956,	Sequence 6954, Ap	Sequence 6955, Ap	æ	መ	Sequence 8, Appli	æ	æ	Sequence 6, Appli	ø	Sequence 18, Appl	Sequence 16, Appl	Sequence 7, Appli	Description

91.5 5.1 1632 6 US-10-506-454-1147 91.5 5.1 1632 6 US-10-506-967-14 90 5.0 811 7 US-11-200-296B-81 89.5 5.0 290 7 US-11-188-298-1550 89.5 5.0 461 7 US-11-188-298-1550 89.5 5.0 461 7 US-11-188-298-2086 89.5 4.9 647 6 US-10-915-002-283 89.9 4.9 1192 6 US-10-915-002-283 89.9 4.9 1192 6 US-10-915-002-283 89.5 4.9 356 7 US-11-188-298-2086 88.5 4.9 516 7 US-11-096-568A-14917 88.5 4.9 541 7 US-11-096-568A-14917 88.5 4.9 436 7 US-11-188-298-1186 87.5 4.8 347 7 US-11-188-298-1189 87.5 4.8 347 7 US-11-188-298-18192 87.5 4.8 327 7 US-11-188-298-18192 87.5 4.8 367 7 US-11-188-298-18192 87.5 4.8 367 7 US-11-188-298-18192 88.5 4.9 361 7 US-11-188-298-18192 88.5 4.8 351 7 US-11-188-298-6685 87.5 4.8 367 7 US-11-188-298-6685 87.5 4.8 351 7 US-11-079-463-10013 86.5 4.8 351 7 US-11-096-568A-21839	45	44	43	42	41	40	39	38	37	36	35	34	ω ω	32	<u>μ</u>	30	29	28	27	26
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7 US-11-0506-454-1147 7 US-11-200-96B-81 7 US-11-188-298-1550 7 US-11-188-298-1550 7 US-11-188-298-12086 7 US-11-188-298-12086 7 US-11-188-298-14916 7 US-11-188-298-14916 7 US-11-188-298-14916 7 US-11-188-298-14916 7 US-11-188-298-1491 7 US-11-188-298-1484 7 US-11-188-298-1484 7 US-11-188-298-1484 7 US-11-188-298-1484 7 US-11-188-298-1685 7 US-11-188-298-1685 7 US-11-188-298-1685 7 US-11-188-298-1685 7 US-11-188-298-1685 7 US-11-099-463-10013 7 US-11-099-463-21839	353	351	301	867	627	321	492	347	436	601	541	516	356	1192	647	461	290	811	457	1632
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	US-11-096-568A-21829	US-11-096-568A-21830	US-11-072-512-2223	US-11-079-463-10013	US-11-188-298-6685	US-11-188-298-1484	US-11-188-298-18192	US-11-188-298-1186	US-11-188-298-476	US-11-096-568A-14916	US-11-096-568A-14917	US-11-096-568A-14918	US-11-188-298-22086	US-10-858-730-72	US-10-915-002-283	US-11-087-099-4404	US-11-188-298-1550	US-11-200-296B-81	US-11-059-867-14	US-10-506-454-1147
	21829, A	21830, A	2223, Ap	10013, A	6685, Ap	1484, Ap	18192, A	1186, Ap	476, App	14916, A	14917, A	14918, A	22086, A	72, Appl	283, App	4404, Ap	1550, Ap	81, Appl	14, Appl	1147, Ap

ALIGNMENTS

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249 GGGFAMIFGÞDGRALAEPLÞETEEGLLVADIDLGMIALAKAAADÞAGHYSRÞDVTRLLLD 308 : : ::	189 PSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLASCATVSPEMIKVLVDTPDKEMFLKA 248	129 RKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAADEQVHVASW 188 	69 FVQRYFENSLVRGSKQWQALADAARRHGMHVVAGYSERAGGSLYMGQAIFGPDGDLIAAR 128 	9 RGAAVQAAPVFLDLDRTVEKAIGLIBQAAKQDVRLIAPPETWIPGYPFWIWLGAPAWGMR 68 	Query Match 48.1%; Score 869; DB 6; Length 356; Best Local Similarity 50.3%; Pred. No. 1.5e-71; Matches 171; Conservative 54; Mismatches 105; Indels 10; Gaps 2	WESULT 1 (US-10-537-075-7) (Sequence 7, Application US/10537075) ; Sequence 7, Application WS/20060014291A1 GENERAL INFORMATION: APPLICANT: Kesseler, Maria APPLICANT: Zelinski, Thomas APPLICANT: Hauer, Bernhard TITLE OF INVENTION: L-RHAMNOSE-INDUCIBLE EXPRESSION SYSTEMS FILE REFERENCE: 12810-00091-US CURRENT APPLICATION NUMBER: US/10/537,075 CURRENT FILING DATE: 2005-06-01 PRIOR APPLICATION NUMBER: PCT/EP2003/013367 PRIOR FILING DATE: 2003-11-27 PRIOR APPLICATION NUMBER: DE 102 56 381.0 PRIOR FILING DATE: 2003-12-02 NUMBER OF SEQ ID NOS: 19 SOFTWARE: Patentin version 3.3 SEQ ID NO 7 LENGTH: 356 TYPE: PRT ORGANISM: Alcaligenes faecalis US-10-537-075-7

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US-10-919-182-18
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; OTHER INFORMATION: Mutant nitrilase with Phe168
US-10-919-182-16
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US-10-919-182-16
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SEQ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
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Best Local :
     APPLICANT: E.I. duPont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: Dayne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOPTWARE: Patentin version 3.2
SEQ ID NO 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
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APPLICANT: Di Cosimo,
APPLICANT: Payne, Mar
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ORGANISM: Artificial sequence
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NO 18
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53; Mismatches 126; Indels
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Best Local Similarity
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; LENGTH: 369
; TYPE: PRT
; ORGANISM: Acidovorax facilis
US-10-919-182-4
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                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDRO:
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 4, Application US/10919182
Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: B.I. duPont de Nemours
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
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TYPE: PRT
ORGANISM: Artificial sequence
                                                                     66 GMRFVQRYFENSLYRGSKQWQALADAARRHGMHVVAGYSERAGGSLYMGQAIFGPDGDLI 125
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46.6%; Pred. No. 7.3e-v-,
-*+ive 52; Mismatches 127;
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; Pred. No. 4.8e-66;
53; Mismatches 126;
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APPLICANT: E.I. duPor
APPLICANT: Di Cosimo
APPLICANT: Payne, Ma
GENERAL INFORMATION:
APPLICANT: E.I. dupont de Nemours and Company,
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
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LENGTH: 369
TYPE: PRT
ORGANISM: Artificial sequence
                                                                    Sequence 12, Application US/10919182 Publication No. US20060035352A1
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CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
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TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
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;; Pred. No. 7.3e-66;
52; Mismatches 127;
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APPLICANT: E.I. duPont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: Dayne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACI
FILLE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 14
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                                                                                                                                    ; OTHER INFORMATION: Mutant nitrilase with Phe168 US-10-919-182-14
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                                                           Best Loc
Matches
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Matches 160; Conservative c
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SEQ ID NO 12
LENGTH: 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 14, Application US/10919182 Publication No. US20060035352A1
                                                                                            Query Match
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CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
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TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
                                                                                                                                                                      TYPE: PRT ORGANISM: Artificial sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Artificial sequence FEATURE: OTHER INFORMATION: Mutant nitrilase with Thr210 to Cys change
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                                                                             Similarity
TXYRGAAVQAAPVFLDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYPFWIWLGAPAW 65
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                                                           Conservative
                                                                           44.5%;
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                                                         Score 804; DB 6;
Pred. No. 1.4e-65;
2; Mismatches 127
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Pred. No. 1.1e-65;
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                                                                                            Length 369
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OTHER INFORMATION: Mutant nitrilase
US-10-919-182-8
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Publication No. US20060035352A1
Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. duPont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: D'ROBER, Mark
APPLICANT: O'Keefe, Daniel
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE NITRILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 8
SOFTWARE: Patentin version 3.2
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Best Local
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TYPE: PRT
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                                 LLDRR---PAORVVTLDAAFEPONEDKGDAPALRVVAESAAAA 345
                                                                                                     LKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSRPDVTRL 305
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   QFDPRNHTPVHR-IGIDGRLDVNTRSRVENFRLRQAAEQERQA 347
                                                                    ĹPQĠĊĠWĀŖĨŸĠŶĎĠSEĹĀĶŶĹĄĖŊĀĔĠĨĹŸĀĔĬĎĹEQĬĽĹĀĶĀGĀĎŶŸĠĦŶŚŖŶĎŶĽSV
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llarity 46.6%; Pred. No. 7.4e-65;
Conservative 49; Mismatches 130;
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APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNI
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20687
LENGTH: 333
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Sequence 20687, Application US/11096568A
Publication No. US20060048240A1
GENERAL INFORMATION:
                                                                                                  Sequence 20686, Application US/11096568A

publication No. US20060048240A1

GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA F
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-15929US2
FULL REFERENCE: 2750-15929US2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20686
LENGTH: 351
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OTHER INFORMATION: Ceres
US-11-096-568A-20687
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Best Local Simi
Matches 117;
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TYPE: PRT
ORGANISM: Zea mays subsp. mays
FEATURE:
NAME/KEY: misc_feature
LOCATION: (1)...(351)
OTHER INFORMATION: Ceres Seq. 1
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ORGANISM: Zea mays subsp. mays
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DGDLIAARRKLKPTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAAD 180
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                                                                                                                                                                                                                                                                                                                                                                                                           KFDFDVVGHYSRPEVLSLVVKSDPKPAVSFISAA
                                                                                                                                                                                                                                                                                                                                                                                                                                             KAAADPAGHYSRPDVTRLLLDRRPAQRVVTLDAA 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PPEYTFCGLEEEPSPESVVCSGG--SVIISPLGTVLAGFNYES-EALLTADLDLGEIVRA
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; Sequence 6955, Application US/11096568A
Publication No. US20060048240A1
; GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA Fra
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
; CURRENT FILING DATE: 2005-04-01
; NUMBER OF SEQ ID NOS: 34471
; SEQ ID NO 6955
LENGTH: 330
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US-11-096-568A-6955
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: Ceres Seq. -11-096-568A-6955
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FEATURE:
NAME/KEY: misc_feature
LOCATION: (1)..(330)
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                            191
                                                       184 HVASWPSFSLYRGMAYALGPEVNTAASQIYAVEGGCYVLAS---CA----TVSPEMI--K 234
                                                                                                             112;
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                                                                                                                                                               VKGREEFRKYHSAAIDVPGPEVDRLAAMAGKYKVHLVMGVIERDGYTLYCTVLFFDSQGH
                                                                                                                                                                                                                                RATVVQASTIFYDTPATLDKAERLLAEATSYGSQLVVFPEAFVGGYPRGSAFGLSIGNRT
                                                                                                                                                                                                                                                      RGAAVQAAPVFLDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYP----FWIWLG-AP
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                                                                                           YLGKHRKIMPTALERVIWGFGDGSTIPVFETPVGKIGAAICWENRMPLLRTAMYAKGVEI
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                                                                                                                                                                                                                                                                                                                   22.1%; Score 399.5; 33.3%; Pred. No. 1e-
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                         ADARDVWQASMTHIALEGGCFVLSANQFCRRRDYPPPPEYVFAG
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Sequence 6956, Application US/11096568A

Publication No. US20060048240A1

GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA i
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
; SEQ ID NO 6956
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US-11-096-568A-6956
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US-11-096-568A-6954
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Publication No. US20060048240A1

GENERAL INFORMATION:

APPLICANT: Alexandrov, Nickolai et al.

TITLE OF INVENTION: Sequence-Determined DNA Fragments

TITLE OF INVENTION: Therby

FILE REFERENCE: 2750-1592PUS2
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Matches
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SEQ ID NO 6954
LENGTH: 350
TYPE: PRT
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NAME/KEY: misc_feature
LOCATION: (1)..(350)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Glycine max
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                                                                                                                                                                                                                                                                                                   AGHYSRPDVTRLLLDRRPAQRVVTLDAAFEPQNEDK 329
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                                                                                                                                                                                                                                                                  VGHYSRPEVLSLTVKDHPTNPVTFTSTSTKIEDKTK 350
                                                                                                                                                                                                                                                                                                                                     TEVDLTPDS
                                                                                                                                                                                                                                                                                                                                                                   VLVD-TPDKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADP
                                                                                                                                                                                                                                                                                                                                                                                                       YCA--PT-----ADARDVWQASMTHIALEGGCFVLSANQFCRRDYPPPPEYVFAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YLGKHRKIMPTALERVIWGFGDGSTIPVFETPVGKIGAAICWENRMPLLRTAMYAKGVEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LIAARRKIKPTHAERTVFGEGDGSHLAVHDTAIGRIGALCCWEHIQPLSKYAMYAADEQV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VKGREEFRKYHSAAIDVPGPEVDRLAAMAGKYKVHLVMGVI ERDGYTLYCTVLFFDSQGH
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RGAAVQAAPVELDLDRTVEKAIGLIEQAAKQDVRLIAFPETWIPGYP----FWIWLG-AP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VGHYSRPEVLSLTVKDHPTNPVTFTSTSTKIEDKTK 330
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RATVVOASTIFYDTPATLDKAERLLAEATSYGSQLVVFPEAFVGGYPRGSAFGLSIGNRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TEVDLTPDS--VVCAGG--SVIISPLGAVLAGPNYD-GEALISADLDLGEIARAKFDFDV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                     --VVCAGG--SVIISPLGAVLAGPNYD-GEALISADLDLGEIARAKFDFDV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; Score 399.5; DB 7; Pred. No. 1.1e-28; 57; Mismatches 136
                                                                                                           DNA
                                                                                                           Fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       136;
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                                                                                                          Corresponding
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                                                                                                          Polypeptides
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234 210 123

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TYPE: PRT
; ORGANISM: Zea mays subsp. mays
; FEATURE:
; FEATURE:
; NAME/KEY: misc_feature
; LOCATION: (1)...(193)
; OTHER INFORMATION: Ceres Seq. II
US-11-096-568A-20688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-11-096-568A-6956
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US-11-096-568A-20688
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publication No. US20060048240A1
GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA Fragments and Corresponding Polypeptides
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20688
LENGTH: 193
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Best Local
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NAME/KNY: misc_feature
LOCATION: (1)...(233)
OTHER INFORMATION: Ceres Seq. ID no. 15169319
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TYPE: PRT
ORGANISM: Glycine max
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PRT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        152 HDTAIGRLGALCCWEHIQPLSKYAMYAADEQVHVASWPSFSLYRGMAYALGPEVNTAASQ 211
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IYAVEGGCYVLAS---CA----TVSPEMI--KVLVD-TPDKEMELKAGGGFAMIFGPDGR 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FETPVGKIGAAICWENRMPLLRTAMYAKGVEIYCA--PT-----ADARDVWQASMT 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGKYKVHLVMGVIERDGYTLYCTVLFFDSQGHYLGKHRKIMFTALERVIWGFGDGSTIPV
                                                                                                                                                                                                                                            Similarity
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                                                                                                                          LYRGMAYALGPEVNTAASQI-----YAVEGGCYVLASCA-----TVSPEMIKV-LVDI 239
                                                                                                                                                           PTHAERTVFGEGDGSHLAVHDTAIGRLGALCCWEHIQPLSKYAMYAADEQVHVASWPSFS
                                                            PDKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVADIDLGMIALAKAAADPAGHYSR 299
                                PSPESVVCSGG--SVIISPLGTVLAGPNYES-EALLTADLDLGEIVRAKFDFDVVGHYSR
   PDVTRLLLDRRPAQRVVTLDAA 321
                                                                                                                                                                                                                           Conservative
                                                                                              ---PTVDCMPTWLSSMTHIALEGGCFVLSACQFCRRKNYPPPPBEYTFCGLEEE 105
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                                                                                                                                                                                                                                            15.7%;
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                                                                                                                                                                                                                           Score 284; DB 7; Length 193; 
Pred. No. 1.8e-18; 
8; Mismatches 67; Indels
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RESULT 15
US-11-087-099-2095
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TITLE OF INVENTION: Genes and Uses for Plant Improvement
FILE REFERENCE: 38-21(53450)B EP
CURRENT APPLICATION NUMBER: US/11/087,099
CURRENT FILING DATE: 2005-03-22
NUMBER OF SEQ ID NOS: 12464
SEQ ID NO 2095
LENGTH: 901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 2095, Application US/11087099 Publication No. US20060041961A1 GENERAL INFORMATION:
Search completed: April 27, 2006, 01:06:50 Job time : 20.2372 secs
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PRT
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les 86; Conservative
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                                                                                                                                                                                                                                                                                                                        161
                                                                                                                                                                                                                                                                                                                                                                                          101 AGYSERAGGSLYMGQAIFGPDGDLIAARRKLKPTHAERTVFGEGDGSHLAVHDTAIGRLG 160
                                                                                                                                                                              278 DIDLGMIALAKAAADPAGHYSRPDVTRLLLDRRPAQRVV--TLDAAFEP-QNEDKGDA--
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SHPPTRFRSLAQGVLLALGCATGAAHAATPPYLDTQRSFEARAADLVSRMTLEEKAAQMQ 62
                                                                                                                                                                                                                                                                                                                                                        A----RAGGATVFPOAIG-----MAATFDLPLMHEVAT-----
                                                                                                                                                                                                                                                 GCYVLASCATVSPEMIKVLVDTPDKEMFLKAGGGFAMIFGPDGRALAEPLPETEEGLLVA 277
                                                                                                                                                                                                                                                                                   -----HHQFLRQNQHARYQG-----LTFWSPNINIFRDPRWGRGQE--------
                                                                                                                                            KLD----ATAKHLAVHSGPEADRHHFDARPSQRDLYETYLPAFEALVKEGKVDAVM
                                                                          GAYNRVYGESASASK 264
                                                                                                            -PALRVVAESAAAAQ 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mark S. et al
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7.3%; Score 131.5; DB 7;
22.9%; Pred. No. 0.0011;
ative 37; Mismatches 109;
                                                                                                                                                                                                                       -TYGEDPFLTARMGVTFVQGLQGEGAA--APKNAQGEPYR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                184
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17;

86

249 332 197

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-MODEL=frame+ n2p.model -DEV=xlp
-Q=/abss/ABSSWEB spool/US09751299/runat_26042006_090036_18677/app_query.fasta_1
-Q=/abss/ABSSWEB spool/US09751299/runat_26042006_090036_18677/app_query.fasta_1
-DB=PIR -QFMT=fastan -SUFFIX=rpr -NINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE-LOCAL
-OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=2000000000 -HOST=abss02p
-USER-US09751299_@CGN_1 1 77 @runat 26042006_090036_18677 -NCPU=6 -ICPU=3
-USER-US09751299_@CGN_1 1 77 @runat 26042006_090036_18677 -NCPU=6 -ICPU=3
-NO_MMAP -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG -DEV_TIMEOUT=120
-NARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6 -FGAPEXT=7
-YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
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Maximum DB
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Perfect score:
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 Score
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seq length: 2000000000
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1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
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Match
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Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
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first 45 summaries
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24.7 362 2 T52266 24.4 348 2 T03739 24.4 349 2 T03739 21.4 199 2 S50363 21.4 199 2 S50363 21.1 199 2 S50363 21.1 199 2 F75263 21.0 297 2 F41662 2 C71109 2 F75263 2 F76264 2 F75263 2 F75264 2 F	132.5	134	134	135.5	136	136.5	138	138.5	140.5	142	142.5	143	143	146.5	150.5	151.5	152.5	152.5	156.5	160	171	172.5	178.5								
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RESULT 1 A45070

nitrilase - Rhodococcus rhodochrous C;Species: Rhodococcus rhodochrous C;Species: Rhodococcus rhodochrous C;Date: 10-Jun-1993 #sequence_revision 18-Nov-1994 #text_change 31-Dec-2004 C;Accession: A45070 R;Kobayashi, M.; Komeda, H.; Yanaka, N.; Nagasawa, T.; Yamada, H. J. Biol. Chem. 267, 20746-20751, 1992 A;Title: Nitrilase from Rhodococcus rhodochrous J1. Sequencing and overexpre A;Reference number: A45070; MUID:93015976; PMID:1400390 A;Contents: J1 B á 밁 S Query Match: DB: A;Cross-references: UNIPROT:Q03217; UNIPARC:UPI000016FF36; GB:D11425; NID:g216933; PIDN:A;Note: sequence extracted from NCBI backbone (NCBIN:116039, NCBIP:116040) C;Superfamily: nitrilase (carbon-nitrogen hydrolase) A; Status: preliminary A; Molecule type: DNA; US-09-751-299-3 (1-1014) x A45070 (1-366) Percent Similarity: Best Local Similarity: Pred. A; Residues: 1-366 < KOB> A; Accession: A45070 No.: 29 76 16 AAGGTCGCCTGCGTGCAAGCCGCCCCCGATCTACATGGATTTGGAGGCGACGACGGTGGACAAA 75 ø ACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGATCGCCTTTTCCGGAA 135 LysvalAlaAlaValGinAlaGInProValTrpPheAspAlaAlaLysThrValAspLys ThrValSerIleIleAlaGluAlaAlaArgAsnGlyCysGluLeuValAlaPheProGlu protein 6.11e-71 836.50 68.8% 50.6% 45.8% Length:
Matches:
Conservative:
Mismatches:
Indels: Gaps: overexpression 48 28 of the

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136 ACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCAGCATGGGCAATG---

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RESULT 2
A47181
A47181
nitrilase (EC 3.5.5.1), arylacetone-specific - Alcaligenes faecalis
C;Species: Alcaligenes faecalis
C;Species: Alcaligenes faecalis
C;Date: 21-Sep-1993 #sequence_revision 18-Nov-1994 #text_change 31-Dec-2004
C;Accession: A47181; S13860
R;Kobayashi, M.; Izui, H.; Nagasawa, T.; Yamada, H.
R;Kobayashi, M.; Izui, H.; Nagasawa, T.; Yamada, H.
Proc. Natl. Acad. Sci. U.S.A. 90, 247-251, 1993
A;Title: Nitrilase in biosynthesis of the plant hormone indole-3-acetic acid from A;Reference number: A47181; MUID:93126352; PMID:8419930
A;Contents: JM3
A;Accession: A47181
A;Status: preliminary
A;Status: preliminary
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-356 < KOB>
A;Cross-references: UNIPROT:P20960; UNIPARC:UPI0000033514; GB:D13419; NID:g216202;
A;Note: sequence extracted from NCBI backbone (NCBIN:122081, NCBIP:122082)
R;Nagasawa, T.; Mauger, J.; Yamada, H.
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Bur. J. Biochem. 194, 765-772, 1990
A;Title: A novel nitrilase, arylacetonitrilase, of Alcaligenes faecalis A;Reference number: S13860; MUID:91099356; PMID:2269298
A;Accession: S13860
A;Status: preliminary
A;Molecule type: protein
A;Residues: 1-33 kNAG>
A;Cross-references: UNIDARC:UPI0000175E31
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
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                                                                         TGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCATGCG
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RESULT 3
A43470
aliphatic nitrilase - Rhodococcus rhodochrous
C;Species: Rhodococcus rhodochrous
C;Date: 10-Jun-1993 #sequence_revision 18-Nov-1994 #text_char
C;Accession: A43470
R;Kobayashi, M: Yanaka, N.; Nagasawa, T.; Yamada, H.
Biochemistry 31, 9000-9007, 1992
A;Title: Primary structure of an aliphatic nitrile-degrading
A;Reference number: A43470; MUID:93003039; PMID:1390687
A;Contents: K22
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A;Molecule type: DNA; protein
A;Residues: 1-383 <KOB>
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               GCCCGGCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAAGGGGATGGT
                                                                                                                                     AspGlyAlaSerArgTyrLeuSerGlnValPheIleAspGlnAsnGlyAspIleValAla
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                                                                                                                                                                                               ArgLeuGlnLeuAlaAlaArgGlnAsnAsnIleAlaLeuValMetGlyTyrSerGluLys
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Query Match:
DB:
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A;Title: Aliphatic nitrilase from a soil-A;Reference number: JC4212; MUID:95369726
A;Accession: JC4212
                                                                                                                                                                                                                                                                                                                                  A;Molecule type: protein
A;Residues: 154-162;295-302;323-340 <LE2>
A;Cross-references: UNIPARC:UPI0000175E33;
C;Comment: This enzyme is active on adiponitrile and cyanovaleric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C;Date: 14-Nov-1995 #sequence revision 08-Feb-1996 C;Accession: JC4212; PC4056 R;Levy-Schil, S.; Soubrier, F.; Crutz-Le Coq, A.M.;
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                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                         A;Gene: nitA
C;Superfamily: nitrilase (carbon-nitrogen
C;Keywords: hydrolase
F;163/Active site: Cys #status predicted
                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: PC4056
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A; Residues: 1-354 < LEV>
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60.3%
41.2%
34.9%
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MUID:95369726; PMID:7642130
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Matches:
Conservative:
Mismatches:
Indels:
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cloni Ö

GB:J03196; NID:g149174; PIDN

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RESULT 5
A28658
nitrilase (EC 3.5.5.1) - Klebsiella ozaenae
C;Species: Klebsiella ozaenae
C;Species: Klebsiella ozaenae
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_chan;
C;Accession: A28658
R;Stalker, D.M.; Malyj, L.D.; McBride, K.E.
J. Biol. Chem. 263, 6310-6314, 1988
A;Title: Purification and properties of a nitrilase specific: A;Reference number: A28658; MUID:88198177; PMID:2834373
A;Accession: A28658
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ValHisValAlaSerTrpProAlaPhe-----ValProLysGlyAlaValSerSerArg
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A;Residues: 1-349 <STA>
A;Residues: 1-349 <STA>
A;Cross-references: UNIPROT:P10045; UNIPARC:UPT000013051A;
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
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    CGCATCCTTGCTAAAATGGCGGCAGACCCTGCTGGTCATTATTCCCCGTCCCGACATTACT
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US-09-751-299-3 (1-1014) x
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SerLysSerLeuSerProThrGluGluGlyIleValTyrAlaGluIleAspLeuSerMet
                                                                      ProAsnGlnTyrLeuGlyGlyGlyTyrAlaArgIleTyrGlyProAspMetGlnLeuLys
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                                GTCGCGCCTCTTGCCGAAAATGAAGAGGGTATTCTCTACGCAAACCTTGATCCTGGAGTA
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A; ACCESSALE TYPE: DNA
A; Molecule type: DNA
A; Residues: 1-368 < WAN>
A; Cross-references: UNIPROT: P32964;
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C;Keywords: carbon-oxygen lyase; glycoprotein; hydro-lyase
F;286/Binding site: carbohydrate (Asn) (covalent) #status;
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R;Wang, P.; VanEtten, H.D.
Biochem. Biophys. Res. Commun. 187, 1048-1054, 1992
A;Title: Cloning and properties of a cyanide hydratase caprace number: JQ1613; MUID:92412068; PMID:1382413
A;Accession: JQ1613
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  PheGluProValThrGlnThrGluIleGlyArgLeuGlyGlnLeuAsnCysTrpGluAsn
                                            CTA---GCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGCTGTTGGGAGCAC
                                                                                         CGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAAGGGGATGGTTCATCG
                                                                                                                                                                                       AlaThrLeuTyrLeuThrGlnValLeuIleSerProLeuGlyAspValIleAsnHisArg
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nitrilase (EC 3.5.5.1) - Synechocystis sp. (strain PCC 6803)
N;Alternate names: protein sll0784
C;Species: Synechocystis sp.
A;Variety: PCC 6803
C;Date: 25-Apr-1997 #sequence_revision 25-Apr-1997 #text_change 31-Dec-2004
C;Accession: S77025
R;Kaneko, T.; Sato, S.; Kotani, H.; Tanaka, A.; Asamizu, E.; Nakamura, Y.; I
o, K.; Okumura, S.; Shimpo, S.; Takeuchi, C.; Wada, T.; Watanabe, A.; Yamadd
DNA Res. 3, 109-136, 1996
A;Title: Sequence analysis of the genome of the unicellular cyanobacterium
                                                                                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 1-346 < KAN>
A; Cross-references: UNIPROT: Q55949;
A; Note: the nuclectide sequence was
C; Genetics:
                                                                                                                                                                                                           A;Start codon: GTG
C;Superfamily: nitrilase
C;Keywords: hydrolase
US-09-751-299-3 (1-1014) x S77025 (1-346)
                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                               A; Status: nucleic acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                     A;Reference number: S74322; MUID:97061201; PMID:8905231 A;Accession: S77025
                                                                                                        Percent Similarity:
                                                             Local Similarity: y Match:
                                                                                                                                                  No.:
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58.0%
35.7%
28.7%
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                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
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Yamada, M.; Yasuda
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ATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAGGCGACGGTGGAC

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RESULT 8
T49147
nitrilase (EC 3.5.5.1) 1 [imported] - Arabidopsis thaliana
nitrilase (EC 3.5.5.1) 1 [imported] - Arabidopsis thaliana
N;Alternate names: protein T10D17.100
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Jun-2000 #sequence revision 02-Jun-2000 #text_change 31-Dec-2004
C;Accession: T49147; T52260; T52263
C;Arcession: T49147; T52260; T52263
C;Argelo, M.; Vezzi, A.; Modesto, D.; Pigazzi, M.; Valle, G.; Mewes, H.W.; Rudd,
submitted to the protein Sequence Database, April 2000
A;Reference number: Z25017
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| IleAlaGluGly---GluGlyLeuAlaIleAlaAspLeuAspPheSerLeuIleAlaLys
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A;Introns: 44/1; 104/1; 202/1; 296/1
A;Introns: 44/1; intrilase (carbon-nitrogen
C;Keywords: hydrolase
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A;Experimental source: cultivar Columbia
C;Genetics:
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A;Accession: T49147
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A;Cross-references: UNIPROT:p32961; UNIPARC:UPI0000001AE2; EMBL:AL353865; GSPDB:GN00061;
A;Cross-references: UNIPROT:p32961; UNIPARC:UPI0000001AE2; EMBL:AL353865; GSPDB:GN00061;
A;Cross-references: UNIPROT:p32961; UNIPARC:UPI00000001AE2; EMBL:AL353865; GSPDB:GN00061;
A;Experimental source: Cultivar Columbia; BAC clone T10D17
R;Hillebrand, H.; Bartling, D.; Weiler, E.W.
R;Hillebrand, H.; Bartling, D.; Weiler, E.W.
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S31969
                                                       N;Alternate names: TIDD17.90
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 13-Jan-1995 #sequence revision 13-Jan-1995 #C;Accession: S31969; T49146; T52258
C;Accession: S31969; T49146; T52258
R;Bartling, D.; Seedorf, M.; Schmidt, R.C.; Weiler, submitted to the EMBL Data Library, September 1992
A;Description: Arabidopsis thaliana nitrilases are
A;Reference number: S31969
A;Accession: S31969
A;Molecule type: mRNA
                                                                                                                                                                                                    nitrilase (EC 3.5.5.1) [similarity] -
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family:

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A;Molecule type: DNA

A;Residues: 1-339 < DAN'

A;Cross-references: UNIPARC:UPI0000001444; EMBL:AL353865; GSPDB:(A;Cross-references: Cultivar Columbia; BAC clone T10D17

A;Experimental source: cultivar Columbia; BAC clone T10D17

R;artling, D.; Seedorf, M.; Schmidt, R.C.; Weiler, E.W.

Proc. Natl. Acad. Sci. U.S.A. 91, 6021-9, 1994

A;Title: Molecular characterization of two cloned nitrilases from A;Reference number: Z24514; MUID:8016109; PMID:8016109

A;Accession: T52258

A;Status: preliminary; translated from GB/EMBL/DDBJ

A;Molecule type: mRNA

A;Residues: 1-339 < BA2>

A;Cross-references: UNIPARC:UPI0000001444; EMBL:X68305; PIDN:CAA-A;Experimental source: cultivar Landsberg erecta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: UNIPROT:P32962; UNIPARC:UPI0000001444; EMBL:X68305; NID:g22655; R,D'Angelo, M.; Vezzi, A.; Modesto, D.; Pigazzi, M.; Valle, G.; Mewes, H.W.; Rudd, S submitted to the Protein Sequence Database, April 2000
A;Reference number: Z25017
A;Accession: T49146
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Query
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A;Map position: 3
A;Introns: 37/1; 97/1; 195/1;
C;Superfamily: nitrilase (cark
C;Keywords: hydrolase
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Y Match:
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ThrProIleGlyLysLeuGlyAlaAlaIleCysTrpGluAsnArgMetProLeuTyrArg
                                     ACGTCTGTTGGAAGGCTGGGTGGCTTATGCTGTTGGGAGCACCTTCAACCGCTAACAAAA
                                                                         ThrSerLeuGluArgCysIleTrpGlyGlnGlyAspGlySerThrIleProValTyrAsp
                                                                                                   ACTTTTGTTGAACGTACTTTGTTCGGCGAAGGGGATGGTTCATCGCTAGCGGTTTTTCGAG
                                                                                                                                                  ThrAlaLeuPhePheSerProGlnGlyGlnPheLeuGlyLysHisArgLysLeuMetPro
                                                                                                                                                                                        AGTCAGTGGTTCATAGGCGATAATGGTGACACCATTGGGGCCCGGCGAAAGTTGAAACCT
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A;Residues: 1-339 <HIL>
A;Cross-references: UNIPROT:O04907; UNIPARC:UPI00000A5899; EMBL:Y07648; PIDN:CAA68934.3
A;Experimental source: cultivar Columbia
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Query Match:
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C;Superfamily: nitrilase (carbon-nitrogen
C;Keywords: hydrolase
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RESULT 12
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N;Alternate names: protein T10D17.110
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Jun-2000 #sequence revision 02-Jun-2000 #text_change 31-Dec-2004
C;Accession: T49148; T52261; T52264
R;D'Angelo, M.; Vezzi, A.; Modesto, D.; Pigazzi, M.; Valle, G.; Mewes, H.W.; submitted to the Protein Sequence Database, April 2000
A;Reference number: Z25017
A;Roccession: T49148; T525017
A;Roccession: T49148
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C;Superfamily: nitrilase
C;Keywords: hydrolase
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A;Residues: 1-346 <DAN's A;Residues: 1-346 <DAN's A;Cross-references: UNIPROT:P46010; UNIPARC:UPI000000BDB6; A;Cross-references: cultivar Columbia; BAC clone T10D17 R;Hillebrand, H.; Bartling, D.; Weiler, E.W. Plant Mol. Biol. 36, 89-99, 1998
Plant Mol. Biol. 36, 89-99, 1998
A;Title: Structural analysis of the nit2/nit1/nit3 gene clu A;Reference number: Z26007; MUID:98145459; PMID:9484465
A;Accession: T52261
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A;Molecule type: mRNA
A;Residues: 1-346 CBAR>
A;Cross-references: UNIPARC:UPI000000BDB6; EMBL:U09959; PIDN:AAA19627.1
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A;Title: Differential regulation of an auxin.producing
A;Reference number: Z24515; MUID:8022831; PMID:8022831
A;Accession: T52264
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GlyGlnGlyAspGlySerThrIleProValTyrAspThrProIleGlyLysIleGlyAla 183
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                                                 GGCGAAGGGGATGGTTCATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGC 474
                                                                                                   GlyGlnPheLeuGlyLysHisArgLysValMetProThrSerLeuGluArgCysIleTrp
                                                                                                                                                           GGTGACACCATTGGGGCCCGGCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTC 414
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nitrilase (EC 3.5.5.1) 2 [imported] - Arabidopsis thaliana (Species: Arabidopsis thaliana (mouse-ear cress) C;Species: 20-Oct-2000 #sequence_revision 20-Oct-2000 #text_change C;Accession: T52262 R;Bartel, B.; Fink, G.R. proc. Natl. Acad. Sci. U.S.A. 91, 6649-53, 1994 A;Title: Differential regulation of an auxin-producing nitrilase A;Reference number: Z24515; MUID:8022831; PMID:8022831 A;Accession: T52262 A;Status: preliminary; translated from GB/EMBL/DDBJ A;Molecule type. Num
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A; Introns: 37/2;
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A;Residues: 1-339 <BAR>
A;COSB-references: UNIPROT:P32962; UNIPARC:UPI000016DA4C; EMBL:U38845; PIDN:AAB05220.1
A;Experimental source: cultivar Columbia
                                                                                                 US-09-751-299-3 (1-1014) x T52262 (1-339)
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                                                             ATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAGGCGACGGTGGAC
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                                               probable nitrilase (EC 3.5.5.1) ZK1058.6 - C,Species: Caenorhabditis elegans C,Date: 15-Oct-1999 #sequence_revision 15-C C,Accession: T27679 R,Mortimore, B.
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                                                                                                                                                                                                                                                AspLysGluProAspSerIleValSerGlnGlyGlySerValIleIleSerProLeuGly
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                                                                                                                                                                                                                                                                                                                 GlnValLeuAlaGlyProAsnPheGluSer---GluGlyLeuIleThrAlaAspLeuAsp
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                                                                                                                     Caenorhabditis elegans
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A;Introns: 71/2; 178/1; 2
C;Superfamily: nitrilase
C;Keywords: hydrolase
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A;Molecule type: DNA
A;Residues: 1-305 <WIL>
A;Cross-references: UNIPROT:023384; UNIPARC:UPI000007C5FC; EMBL:Z35604; PIDN:CAA84681.1
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     HisGlyGluAspLysValLeuIleArgGlyGly-----SerCysAlaValAspProLeu
                                                                                                                                                   ArgAspValTrpLeuSerThrMetArgThrIleAlaLeuGluGlyArgCysPheValVal
                                                                                                                                                                                        CCTGATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTA 657
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                                      GACGAAAAGCATGCGTTGCTTCTGGCTGGTGGTGGACACTCACGTATCATAGGGCCTGAT
                                                                           SerAlaCysGlnPheLeuLysSerSerAspTyrProLeuAspHisProLeuArgLysGlu
                                                                                                                  GCGTCGTGTGCGCTCGTTTCACAATCCATGATCGATATG-----CTTTGTACAGAT
                                                                                                                                                                                                                                                                                                      IleCysTrpGluAsnTyrMetProLeuTyrArgMetThrLeuTyrSerLysGluIleGln
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A;Accession: T52266
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
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;Species: Oryza sativa (rice)
C;Date: 20-Oct-2000 #sequence_revision
C;Accession: T52266
R;Chiba, R.; Dohmoto, M.; Yamaguchi, K.
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C;Superfamily: nitrilase (carbon-nitrogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: UNIPROT:Q9SXX6; UNIPARC:UPI000009C92A; A;Experimental source: cultivar Nipponbare C;Genetics:
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A; Residues: 1-362 < CHI>
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ACTITGTTCGGCGAAGGGGATGGTTCATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAGG
                                                                                                                          LeuValMetGlyValIleGluArgGluGlyTyrThrLeuTyrCysSerValLeuPhePhe
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| LysAlaGluArgLeuIleGluAlaAlaGlyTyrGlySerGlnLeuValValPhePro
                                                                                                                                                                    GluValProGlyProGluValThrArgLeuAlaAlaMetAlaGlyLysTyrLysValPhe
                                                                                                                                                                                                                                                                                                                    CTTGACTCACCAGCA---TGGGCAATGCAATTTGTACGCCAATACCATGAGAACTCATTG
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                                                        AspProLeuGlyArgTyrLeuGlyLysHisArgLysLeuMetProThrAlaLeuGluArg
                                                                                             GGCGATAATGGTGACACCATTGGGGCCCCGGCGAAAGTTGAAACCTACTTTTGTTGAACGT
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-Q=Jabse/ABSSWEB_Spool/US09751299/runat_26042006_090034_18631/app_query.fasta_1
-DB=UniProt -QFMT=fastan -SUFFIX=rup -MINMATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS-bits -START=1 -END=-1 -MATRIX=blosun62 -TRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFWT=pto -NORM-ext -HEAPSIZE=50 -MINLEN=0 -MAXIEN=20000000000 -HOST=abss02p
-USER-US09751299 @CGN 1 1 580 @runat 26042006 090034_18631 -NCPU=6 -ICPU=3
-NO_MMAP -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG -DEV_TIMEOUT=120
-WARN TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6 -FGAPEXT=7
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gnment Scores: 3.08e-149 id: No.: 1765.00 re: 100.0% cent Similarity: 100.0% it Local Similarity: 100.0% zy Match: 96.7%	Mathur E., Kretz P.L., "Exploring nitrilase se Appl. Environ Microbio EMBL; AY487562; AAR9750 GO; GO:0016810; F: Ndiph GO; GO:0016810; F: Ndiro GO; GO:0006807; P:nitro InterPro; IPR000132; N/. InterPro; IPR0030310; N/. InterPro; IPR0030310; N/. PFGMT; PF00795; CN. hydro PROSITE; PS00921; NITRI: Hydrolase. SEQUENCE 337 AA; 367:	SULT 1 OGRWEO 9ZZZZ PRELIMINARY; PI OGRWEO; O5-JUL-2004 (TrEMBLrel. 27, Creal O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last O5-JUL-2004 (TrEMBLrel. 27, Last OFRINARES BD5200; Uncultured organism. uncultured organism. uncultured organism. uncultured organism. uncultured organism. uncultured organism. VEBI TaxID=155900; [1] NUCLEOTIDE SEQUENCE. PubMed=15066841; DOI-10.1128/AEM Robertson D. B., Chaplin J. A., Des Chi E., Richardson T., Milan A., McQuaid J., Farwell B., Preston I. Mathur R. Veston I.
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RA Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Wang K.,

RA Robertson D.E., Chaplin J.A., DeSantis G., Podar M.,

RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,

RA Mathur E., Kretz P.L., Burk M.J., Short J.M.;

RI "Exploring nitrilase sequence space for enantioselective catalysis.";

RI "Exploring nitrilase sequence space for enantioselective catalysis.";

RI "Exploring nitrilase sequence space for enantioselective catalysis.";

RI "Exploring nitrilase sequence space for enantioselective catalysis.";

RI "Exploring nitrilase sequence space for enantioselective catalysis.";

RI "Exploring nitrilase activity; IEA.

DR GO: 00108762; F:aliphatic nitrilase activity; IEA.

DR GO: 00108762; F:hydrolase activity, acting on carbon-nitrog. ..; IEA.

DR GO: 00108807; P:nitrogen compound metabolism; IEA.

DR GO: 00108807; P:nitrogen compound metabolism; IEA.

DR FOOSTIE; PS00920; NITRIL_CHT_1; 1.

DR PROSITE; PS00920; NITRIL_CHT_2; 1.

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RP NUCLEOTIDE SEQUENCE.

RP NUCLEOTIDE SEQUENCE.

RX PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

RX PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

RA Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

RA Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,

RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,

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RA McQuaid J., Preston L.A., Tan X., Snead M.A., Keller M.,

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"Exploring intrilate M.J., Desarting intrilate M., Tan X., Snead M.A., Keller M.,

"Exploring intrilate C.T.

"Exploring intrilate M., Desarting intrilate C.T.

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Chain P., Larimer F., DiBartolo G., Copeland A., Lykidis A.,
Nolan M., Goltsman E., Thiel J., Malfatti S., Lapidus A., Det
Land M., Richardson P.M., Kyrpides N.C., Ivanova N.;
"Comparison of two complete genome sequences of Pseudomonas;
pv. syringae B728a and pv. tomato DC3000.";
Proc. Natl. Acad. Sci. U.S.A. 0:0-0(2005).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity:
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Bacteria; Proteobacteria; Gammaproteobac
Pseudomonadaceae; Pseudomonas.
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Aliphatic nitrilase (EC 3.5.5.7).
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mitted (MAY-2005) to the EMBL/GenBank/DDBJ databases.
L; CP000075; AAY35081.1; -; Genomic_DNA.
GO:0018762; F:aliphatic nitrilase activity; IEA.
GO:0016787; F:hydrolase activity; IEA.
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                                                                                 CAAGCTAAGCGCATTTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATG
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X MEDLINE-22834015; PubMed=12928499; DOI=10.1073/pnas.1731982100;

XM MEDLINE-22834015; PubMed=12928499; DOI=10.1073/pnas.1731982100;

XA MEDLINE-22834015; PubMed=12928499; DOI=10.1073/pnas.1731982100;

XA Melson M.C., Joardar V., Lindeberg M., Selengut J., Paulsen I.T.,

XA Madupu R., Daugherty S.C., Brinkac L.M., Beanan M.J., Haft D.H.,

XA Melson W.C., Davidsen T.M., Zafar N., Zhou L., Liu J., Yuan Q.,

XA Nelson W.C., Davidsen T.M., Zafar N., Zhou L., Liu J., Yuan Q.,

XA Khouri H.M., Fedorova N.B., Tran B., Russell D., Berry K.J.,

XA Khouri H.M., Fedorova N.B., Tran B., Russell D., Berry K.J.,

XA Witerback T.R., Van Aken S.E., Feldblyum T.V., D'Ascenzo M.,

XA Delaney T.P., Lazarowitz S.G., Martin G.B., Schneider D.J., Tang X.,

XA Bender C.L., White O., Fraser C.M., Collmer A.;

YA Bender C.L., White O., Fraser C.M., Collmer A.;

"The complete genome sequence of the Arabidopsis and tomato pathoger

TO Pseudomonas syringae pv. tomato DC3000.";

Proc. Natl Acad. Sci. U.S.A. 100:10181-10186(2003).

REMBL; AE016853; AAO53742.1; -; Genomic_DNA.
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InterPro; IPR00312; N/CN hydratase.

InterPro; IPR003010; Ntlse/CNhydtse.

Pfam; PF00795; CN hydrolase; 1.

PROSITE; PS00720; NITRIL CHT 1:

PROSITE; PS00921; NITRIL CHT 2; 1.

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PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

RP bubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

RA Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,

RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,

RA Mathur E., Kretz P.L., Burk M.J., Short J.M.;

RA Mathur E., Kretz P.L., Burk M.J., Short J.M.;

RY "Exploring nitrilase sequence space for enantioselective catalysis.";

RA Mathur E., Kretz P.L., Burk M.J., Short J.M.;

RY "Exploring nitrilase sequence space for enantioselective catalysis.";

RY "Exploring nitrilase activity. Short J.M.;

RY "Exploring nitrilase activity; IEA.

RO; GO:001872; F.Aliphatic nitrilase activity; IEA.

RGO; GO:0016807; F.Nydrolase activity, acting on carbon-nitrog. ..; IEA.

RGO; GO:0016807; F.Nydrolase activity, acting on carbon-nitrog. ..; IEA.

RGO; GO:0006807; F.Nydrolase activity, acting on carbon-nitrog. ..; IEA.

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RGO; GO:0006807; F.Nydrolase activity, acting on carbon-nitrog. ..; IEA.

RO; GO:0006807; F.Nydrolase activity, acting on carbon-nitrog. ..; IEA.

RO; GO:0006807; F.Nydrolase; 1.

RO; GO:0006807; RITRIL_CHT_1; 1.

RROSITE; PS00920; NITRIL_CHT_1; 1.

RROSITE; PS00921; NITRIL_CHT_2; UNKNOWN_1.
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Nitrilase (EC 3.5.5.7).
ORFNames=BD5168;
PubMed=1506681; DOI=10.1128/AEM.70.4.2429-2436.2004; Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M., Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K., McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M. Mathur E., Kretz P.L., Burk M.J., Short J.M., "Bayloring nitrilase sequence space for enantioselective catalysic Appl. Environ. Microbiol. 70:2429-2436 (2004).

EMBL, AY487512; AAR97459.1; -; Genomic DNA.
GO; GO:0018762; F:aliphatic nitrilase activity; IEA.
GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. . GO; GO:0006807; P:nitrogen compound metabolism; IEA.
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unclassified; environmental
uncl_TaxID=155900;
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InterPro; IPR003010; NtLse/CNhydtse.
Pfam; PF00795; CN hydrolase; 1.
PROSITE; PS50263; CN_HYDROLASE; 1.
PROSITE; PS00920; NITRIL_CHT_1; 1.
PROSITE; PS00921; NITRIL_CHT_2; UNKNOW Hydrolase.
SEQUENCE 332 AA; 36214 MW; 2E77B84
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W. Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
A. Chai E., Richardson T., Milan A., Miller M., Weiher D.P., Wong K.
W. McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Kellen
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"Exploring nitrilase sequence space for enantioselective catalys
"Exploring nitrilase sequence space for enantioselective catalys
"Exploring nitrilase sequence activity; IEA.
Appl. Environ. Microbiol. 70:2429-2436(2004).
"R GO; GO:0016810; F:aliphatic nitrilase activity; IEA.
"GO; GO:0016810; F:aliphatic nitrilase activity, acting on carbon-nitrog.
"R GO; GO:0016810; F:nltrogen compound metabolism; IEA.
"InterPro; IPR003010; Ntlse/CNhydtse.
"InterPro; IPR003010; Ntlse/CNhydtse.
"R Pfam; PF00795, CN hydrolase; 1.
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"PROSITE; PS00920; NITRIL CHT_2; 1.
"R PROSITE; PS00921; NITRIL CHT_1; 1.
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PubMed=15066841, DOI=10.1128/AEM.70.4.2429-2436.2004;

PubMed=15066841, DOI=10.1128/AEM.70.4.2429-2436.2004;

A Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

A Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,

A McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller

Mathur E., Kretz P.L., Burk M.J., Short J.M.,

"Exploring nitrilase sequence space for enanticselective catalysi

"Exploring nitrilase sequence 52-2436(2004).

IAppl. Environ. Microbiol. 70:2429-2436(2004).

IAppl. Environ. Microbiol. 70:2429-2436(2004).

REBEL, AV487559; AAR87506.1; -, Genomic_DNA.

RGO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog.

GO; GO:0006807; P:nitrogen compound metabolism; IEA.

RR GO; GO:0006807; P:nitrogen compound metabolism; IEA.

RR InterPro; IPR000132; N/CN hydratase.

InterPro; IPR000130; Nt186/CNhydtse.
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QGRWE3 9ZZZZ PRELIMINARY;

QGRWE3;

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Nitrilase (EC 3.5.5.7).
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PS00920; NITRIL_CHT_1;
PS00921; NITRIL_CHT_2;
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Ry and Chi E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
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Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
Robertson D.E., Milan A., Miller M., Weiner D.P., Wong K.,
Robertson D.E., Milan A., Miller M., Weiner D.P., Wong K.,
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X PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

A Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

A Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.

A McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Kelle

Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective cataly

"L. Appl. Environ. Microbiol. 70:2429-2436(2004).

"R EMBL; AY487430; AAR97377.1; -; Genomic DNA.

"R GO; GO:0018762; F:aliphatic nitrilase activity; IEA.

"GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog.

"R GO; GO:001687; P:nitrogen compound metabolism; IEA.

"InterPro; IPR000132; N/CN hydratase.

"InterPro; IPR003010; Ntlse/CNhydratase.
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Q6RWS2;
05-JUL-2004 (TrEMBLrel. 27,
05-JUL-2004 (TrEMBLrel. 27,
05-JUL-2004 (TrEMBLrel. 27,
Nitrilase (EC 3;5.7).
ORFNames=DD5338;
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Best Local Similarity:
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Pfam; PF00795; CN hydrolase; 1.

PROSITE; PS50263; CN HYDROLASE; 1.

PROSITE; PS500920; NITRIL_CHT_1; 1.

PROSITE; PS00920; NITRIL_CHT_2; UNKNOWN_1.

PROSITE; PS00496; PII_GLNB_UMP; UNKNOWN_1.

Hydrolase.

SEQUENCE 348 AA; 38397 MW; 95F18795D75
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A Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
A McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller I.
A Mathur E., Kretz P.L., Burk M.J., Short J.M.;
"Exploring nitrilase sequence space for enantioselective catalysic
Lappl. Environ. Microbiol. 70:2429-2436(2004).
LAppl. Environ. Microbiol. 70:2429-2436(2004).
R GO; GO:0018762; F:aliphatic nitrilase activity; IEA.
R GO; GO:0018762; F:nitrogen compound metabolism; IEA.
R GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog.
R GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog.
R GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog.
R GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog.
R GO; GO:0016810; F:hydrolase; 1.
R FORSITE; PS50263; CN hydrolase; 1.
R PROSITE; PS50263; CN hydrolase; 1.
R PROSITE; PS50263; CN hydrolase; 1.
R PROSITE; PS500920; NITRIL_CHT_1; 1.
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Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
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Raploring nitrilase sequence space for enantioselective catalysis.";
Raploring nitrilase sequence space for enantioselective catalysis.";
Rapl. Environ. Microbiol. 70:2429-2436(2004).
RemBL; AY487429; AAR97376.1; -; Genomic DNA.
RemBL; AY487429; AAR97376.1; -; Genomic DNA.
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RemBL; AY487429; AAR97376.1; -; Genomic DNA.
RemBC: GO:0018810; F:hydrolase activity, acting on carbon-nitrog. ..; IEA.
RepG: GO:0006807; F:nitrogen compound metabolism; IEA.
RemCo:0006807; F:nitrogen compound metabolism; IEA.
RemCo:0006807; PRO:00132; N/CN hydratase.
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Nitrilase (EC 3.5.5.7).
NUCLEOTIDE SEQUENCE.

PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

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McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,

Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective catalysis."
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R EMBL; AY487558; AAX97505-1; -; Genomic DNA.

R GO; GO:0018762; F:aliphatic nitrilase activity; IE
R GO; GO:0016810; F:hydrolase activity, acting on ca
R GO; GO:0016807; P:nitrogen compound metabolism; IE
InterPro; IPR000132; N/CN hydratase.
R InterPro; IPR0003010; Ntlse/CNNydtse.
R Pfam; PF00795; CN_hydrolase; 1.
R PROSITE; PS00202; NITRIL CHT 1; 1.
R PROSITE; PS00920; NITRIL CHT 2; 1.
R PROSITE; PS00921; NITRIL CHT 2; 1.
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                                      GCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCATGCGTTG
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-MODELL-frame+ n2p.model -DEV=Xlp
-Q=/abss/ABSSWEB_spool/US09751299/runat_26042006_090032_18619/app_query.fasta_1
-DB=A_Geneseq -QFWT=fastan -SUFFIX=rag -MINMATCH=0.1 -LOOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANGS=human40.cdi -LIST=45
-DCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=15 -MODE=LOCAL
-OUTFWT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=2000000000 -HOST=abs802p
-USER=US09751299 @CGN 1 1 476 @runat 26042006 090032_18619 -NCPU=6 -ICPU=3
-NO_MMAP -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG -DEV_TIMEOUT=120
-WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPEXT=7
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ALIGNMENTS

RESULT 1 AAE05489 ID AAE0

AAE05489 standard; protein; 337 AA.

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Producing alpha-substituted carboxylic acid enantiomers by contacting
                  N-PSDB; AAD11167
                                                                                     29-DEC-1999; 99US-0173609P.
07-DEC-2000; 2000US-0254414P.
                                                                                                                                                                                  Nitrilase; enantiomer; alpha-substituted carboxylic acid; stereoselective; hydrolysis; amino nitrile; cyanohydrin.
                                                                                                                                                                                                            Nitrilase
                           WPI; 2001-465211/50
                                          Madden M,
                                                                                                              29-DEC-2000; 2000WO-US035555.
                                                                                                                                05-JUL-2001.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               aldehyde or ketone with cyanide, ammonia compound or its salt or amine and hydrolyzing the resulting amino nitrile or cyanohydrin with Nitrilase.
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            TCGTGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCAT
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                                                                                                                    CATTGTGCGGCTTGGCCGAGCTTTAGCCTTTATCCTAATGCGGCGAAAGCCCTGGGGCCT
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This invention relates to nitrilases and the nucleic acids that encode these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the developme of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improve activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and

have improved

development

Claim 40; SEQ ID

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386; 560pp;

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30-JUL-2001;
22-JAN-2002;
                                                                                                                                                                               Madden
                                                                                                                  Novel nitrilase polypeptide, useful for making (R) - or 3-hydroxybutyric acid or (R) - or (S)-mandelic acid or 1 lactic acid derivative and for producing pharmaceutical
                                                                                                                                                   N-PSDB;
                                                                                                                                                                          Short
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                                                                                                                                                                                                                                                                                                     Unidentified
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DB; ADC24118.
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Burk M;
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2002US-0351336P
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pharmaceutical composition, and
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                              GCGTTGCTTCTGGCTGGTGGACACTCACGTATCATAGGGCCTGATGGTGGTGACTTG
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                                                                                                                                                                                                                                                                                    This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a nitrilase protein which may be used in the method of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Weiner D,
Mcquaid J,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 73; SEQ ID NO 386; 277pp; English.
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DB; ADH36219.
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nitrilase; nitrile; carboxylic acid; chemical enantioselective transformation; enzyme.
                                                                                    Nitrilase enzyme amino acid sequence SeqID386
                                    process;
                                    pH; temperature;
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15-MAY-2003; 2003WO-US015712

15-MAY-2002; 2002US-00146772 09-SEP-2002; 2002US-00241742

DIVERSA CORP.

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Desantis ō, Short JM, Burk ĭ, Wong 7, Farwell

2004-090637/09

New isolated or recombinant nucleic acid encoding a polypeptide having nitrilase activity, useful for screening enantioselective transformation.

Claim 44; SEQ ID NO 386; 295pp; English.

This invention is related to a novel isolated or recombinant nucleic a encoding a protein having nitrilase activity. Nitrilase's are capable converting nitrile's directly to carboxylic acids and have great potential for use in industrial chemical processes. The isolated nitrilase proteins of the invention have increased activity and stabil at increased pH and temperature when compared to those conventionally used. In addition, the nucleic acid of the invention is useful for screening enantioselective transformation. The present sequence is that of a nitrilase enzyme of the invention. stability

Sequence A,

Query DB: Alignment Scores:
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                                                                         Atorvastatin; (R)-ethyl 4-cyano-3-hydroxybutyrate; (R)-ethyl 4-cyano-3-hydroxybutyric acid; epichlorohydrin; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric acid mixed hyperlipidaemia; homozygous familial hypercholesterolaemia; antilipaemic; enzyme.
13-JUN-2002;
28-JUN-2002;
                     13-JUN-2003;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present invention relates to a method for preparating an atorvastatin cintermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate (C)-ethyl 4-cyano-3-hydroxybutyrate (C)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic convergion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid with a polypeptide having nitrilase activity, converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters.

A horvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia, mixed dyslipidaemia and homozygous familial hypercholesterolaemia. The present sequence represents a nitrilase polypeptide obtained from an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglucaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 337
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                                     ACCATTGGGGCCCGGCGAAAGTTGAAACCTACTTTTGTTGAAACGTACTTTGTTCGGCGAA
                                                                                          AGTGAACGGGTCGGTGGCACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGAC
                                                                                                                                                                                                  GCATGGGCAATGCAATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCT
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07-DEC-2000;
28-DEC-2000;
21-JUN-2001;
30-JUL-2001;
22-JAN-2002;
15-MAY-2002;
09-SEP-2002;
                                                                                                                                                                                                                                                                                                                                                                                                           (R)-ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis; carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile moiety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S)-ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-mandelic acid; (S)-phenyl lactic acid derivative; (R)-phenyl lactic acid derivative; (R)-mandelic acid; (S)-mandelic acid; (
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       standard; protein;
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                   99US-0173609P.
300UUS-0254414P.
2000US-0751299.
2001US-0300189P.
2001US-0309006P.
2002US-0351336P.
2002US-00146772.
2002US-00241742.
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CC omprising amino acids having a sequence at least 50 % identical to a comprising amino acids having a sequence at least 50 % identical to a cc sequence (SI) available in electronic form (EC) from the following web cc site ftp. seqdata.uspto.gov/sequence.html?DocID=2004014195, or its cvariants, having one or more mutations at residue 55 Lys, Gly or Glu, at cresidue 60 glutamic acid, at residue 111 Ser, their combinations or cc fragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3-cc hydroxybutyric acid; hydrolysing a nitrile to a carboxylic acid; hydrolysing cyanohydrin moiety or an aminonitrile moiety; producing a cc chiral alpha-hydroxy acid molecule or a chiral amino acid molecule; cc mandelic acid or (S)-mandelic acid, producing (S)-phenyl lactic acid; producing in clarifying a molecule; and for identifying a modified compound. The inventive method is useful for monitoring or determining % enantiomeric excess or % diasteromeric care intermediates. This is the amino acid sequence of a nitrilase of the
                                                                                                                                                                                                                                                                                                                                                                                                          Novel isolated or recombinant polypeptide useful in production of food additives.
                                                                                                                                                                                                                                                                                                                                                                       Claim 46; SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Desantis G,
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                                                                                                      cic acid
g a molecule;
d is useful
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Alignment Pred. No.: No.:

Percent Similarity: Best Local Similarity: 1.9e-184 1761.00 100.0% 99.7% 96.4% 8

Conservative:
Mismatches:
Indels:
Gaps:

Best Local Si Query Match: DB:

US-09-751-299-3 (1-1014) x ADI64639 (1-337)

	1-633	- 10 (1~1018) 人 かいさいはいしい (1) ロン・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・	
γQ	_	ATGAAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCGGATCTACATGGATTTGGAG 60	
дb	ш	MetlysGluAlaIleLysValAlaCysValGlnAlaAlaProIleTyrMetAspLeuLys 20	
δ	61	GCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTG 120	
Db	21	AlaThrValAspLysThrIleGluLeuMetGluGluAlaAlaArgAsnAsnAlaArgLeu 40	
Ş	121	ATCGCCTTTCCGGAAACTTCGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCA 180	
Db	41		
Qγ	181	GCATGGGCAATGCAATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCT 240	
DЬ	61	AlaTrpAlaMetGlnPheValArgGlnTyrHisGluAsnSerLeuGluLeuAspGlyPro 80	
Ş	241	CAAGCTAAGCGCATTTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATG 300	
DЪ	81	GlnAlaLysArgIleSerAspAlaAlaLysArgLeuGlyIleMetValThrLeuGlyMet 100	
Qγ	301	AGTGAACGGGTCGGTGGCACCCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGAC 360	
Db	101	SerGluArgValGlyGlyThrLeuTyrIleSerGlnTrpPheIleGlyAspAsnGlyAsp 120	
Ωy	361	ACCATTGGGGCCCGGCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGCCGAA 420	
DЬ	121	ThrIleGlyAlaArgArgLysLeuLysProThrPheValGluArgThrLeuPheGlyGlu 140	
Qy	421	GGGGATGGTTCATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGC 480	

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Novel nitrilase polypeptide, useful for making
                 WPI; 2003-201417/19
N-PSDB; ADC23790.
                                                    Madden
                                                                   (DIVE-)
                                                                                           21-JUN-2001; 2001US-0300189P
30-JUL-2001; 2001US-0309006P
22-JAN-2002; 2002US-0351336P
                                                                                                                                               03-JAN-2003
                                                                                                                                                                WO2003000840-A2
                                                                                                                                                                                 Unidentified
                                                                                                                                                                                                 enantiomer; chiral medicine
                                                                                                                                                                                                          enzyme;
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                                                                                                                                                                                                                                           18-DEC-2003
                                                                                                                                                                                                                                                            ADC23791;
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                                                                    DIVERSA CORP. MADDEN D.
                                                                                                                                                                                                         nitrilase; nitrile;
                                                                                                                                                                                                                          sequence
                                                                                                                                                                                                                                                                                                                                               GCGTTGCTTCTGGCTGGTGGTGGACACTCACGTATCATAGGGCCTGATGGTGGTGACTTG
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                                          Desantis
Burk M;
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                                                                                                                                                                                                                                                                             protein;
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                                                  Chaplin
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3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and food additive.

40; SEQ ID NO 58; 560pp; English.

This invention relates to nitrilases and the nucleic acids that encode these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This polypeptide is a protein sequence that exhibits nitrilase activity of the invention.

Sequence 337 A

Pred. No.: Score:

Alignment

Scores:

Percent Similarity:
Best Local Similarity:
Query Match:

6.07e-138 1339.00 84.2% 75.2% 73.3%

Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:

Qy	ДЪ	γQ	Ъ	γQ	Db	Ŋ	Ф	γQ	Db	Ŋ	Db	Qy	Дb	Qy	DЬ	νQ	дδ	γQ	Db	γ	US-09-751-
601 GATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCCAATGCTTCGTACTAGCG 660	181 HispheAlaAlaTrpProSerPheSerIleTyrArgGlnAlaThrGluValLeuGlyPro 200	541 CATTGTGGGGCTTGGCCGAGCTTTAGCCTAATGCGGCGAAAGCCCTGGGGCCT 600	161 CysTrpGluHisLeuGlnProLeuSerLysTyrAlaLeuTyrAlaGlnAsnGluGluIle 180	481 TGTTGGGAGCACCTTCAACCGCTAACAAATACGCTTTGTATGCACAAAATGAAGAGATT 540	141 GlyAspGlySerSerLeuSerThrPheAspThrProLeuGlyValLeuGlyGlyLeuCys 160	421 GGGGATGGTTCATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGC 480	121 ThrAlaGlyLeuArgArgLysLeuLysProThrHisValGluArgThrLeuPheGlyGlu 140	361 ACCATTGGGGCCGGGCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAA 420	101 SerGluArgValSerGlyThrLeuTyrMetGlyGlnTrpLeuTleAspAspLysGlyGlu 120	301 AGTGAACGGGTCGGTACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGAC 360	81 GlnAlaLysArgIleSerGluAlaAlaGlnArgAlaGlyIleTyrValAlaLeuGlyTyr 100	241 CAAGCTAAGCGCATTTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATG 300	61 AlaTrpGlyMetGlnPheValArgArgTyrHisGluAsnSerLeuValLeuAspSerPro 80	181 GCATGGGCAATGCAATACCATGAGAACTCATTGGAGTTGGATGGCCCT 240	41 IleAlaPheProGluThrTrpIleProGlyTyrProTrpPheLeuTrpLeuAspSerPro 60	121 ATCGCCTTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCA 180	21 AlaThrValAspLysThrValAlaLeuIleGluGluAlaAlaArgAsnGlyAlaArgLeu 40	61 GCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTG 120	1 VallysGluAlaIleLysValAlaCysValGlnAlaAlaProValPheLeuAspLeuAsp 20	1 ATGAAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAG 60	51-299-3 (1-1014) x ADC23791 (1-337)

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This invention relates to nitrilases and the nucleic acids that encode these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in
                                                                                                                                                          Novel nitrilase polypeptide, useful for making (R) - or (S) -ethyl-4-cyano-3-hydroxybutyric acid or (R) - or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   enzyme; nitrilase; nitrile; cyanohyrdin;
enantiomer; chiral medicine.
                                                                                                                                                                                                                                                                                                                                                                                       21-JUN-2001; 2001US-0300189P
30-JUL-2001; 2001US-0309006P
22-JAN-2002; 2002US-0351336P
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the synthesis of enantiomerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This polypeptide is a protein sequence that exhibits nitrilase activity of the invention. development

Percent Similarity: Best Local Similarity: US-09-751-299-3 (1-1014) 6.07e-138 1339.00 84.2% 75.2% 73.3% × ADC23781 (1-337)Length:
Matches:
Conservative:
Mismatches: Indels: Gaps: 337 252 30 47 6

ATGAAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAG CAAGCTAAGCGCATTTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATG GCATGGGCAATGCAATTTGTACGCCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCT IleAlaPheProGluThrTrpIleProGlyTyrProTrpPheLeuTrpLeuAspSerPro ATCGCCTTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTCTTTTGGCTTGACTCACCA GCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTG AGTGAACGGGTCGGTGGCACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGAC 360 120 80 60 40 20

ACCATTGGGGCCCGGCAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAA HisPheAlaAlaTrpProSerPheSerIleTyrArgGlnAlaThrGluValLeuGlyPro CATTGTGCGGCTTGGCCGAGCTTTAGCCTTATCCTAATGCGGCGAAAGCCCCTGGGGCCT TGTTGGGAGCACCTTCAACCGCTAACAAAATACGCTTTGTATGCACAAAAATGAAGAGATT GlyAspG1 GGGGATGGTTCATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGC ThrAlaGlyLeuArgArgLysLeuLysProThrHisValGluArgThrLeuPheGlyGlu TCGTGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCAT ySerSerLeuSerThrPheAspThrProLeuGlyValLeuGl yGlyLeuCys 160 480 140 420 240 720 220 660 200 600 180 540

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                                                                                                            Alignment
                                                                                                                                                                                                                                                         This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently that the systems are the sufficiently that the systems are the systems are the sufficiently that the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the systems are the 
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                                                                                      CCTTACGCTTTGGGTAAAGCGTCTGAGACGGGTGCGCAACTCGAA 1005
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                                               -ProAlaSerAlaGlnGlyPheGluValGlu
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Best Local Similarity:
                                                                                                                                                                                                                                                                                                  US-09-751-299-3 (1-1014) x ADH35892 (1-337)
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a nitrilase protein which may be used in the method of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  reactant comprising a cyanide or a reactant converted to cyanide.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Monitoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted cyanide or a reactant that generates a cyanide or a material that
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N-PSDB; ADH35891.
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Mcquaid J,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 73; SEQ ID NO 58; 277pp; English
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                                                                                              nitrilase; nitrile; carboxylic acid; chemical
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Best Local Similari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This invention is related to a novel isolated or recombinant nucleic acid encoding a protein having nitrilase activity. Nitrilase's are capable of converting nitrile's directly to carboxylic acids and have great potential for use in industrial chemical processes. The isolated nitrilase proteins of the invention have increased activity and stability at increased pH and temperature when compared to those conventionally used. In addition, the nucleic acid of the invention is useful for screening enantioselective transformation. The present sequence is that of a nitrilase enzyme of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New isolated or recombinant nitrilase activity, useful f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 337
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TGTTGGGAGCACCTTCAACCGCTAACAAAATACGCTTTGTATGCACAAAATGAAGAGATT
                          GlyAspGlySerSerLeuSerThrPheAspThrProLeuGlyValLeuGlyGlyLeuCys
                                              GGGGATGGTTCATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGC
                                                                            ThrAlaGlyLeuArgArgLysLeuLysProThrHisValGluArgThrLeuPheGlyGlu
                                                                                                        ACCATTGGGGCCCGGCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAA
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                                                                                                                                                          AGTGAACGGGTCGGTGGCACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGAC
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This invention is related to a novel isolated or recombinant nucleic encoding a protein having nitrilase activity. Nitrilase's are capable

capable

SEQ ID NO

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Alignment .
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 337
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglutaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
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28-JUN-2002; 2002US-0392944P.
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The present invention relates to a method for preparating an atorvastatin intermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate) acid. The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid with a polypeptide having nitrilase activity, converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters. Atorvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia. The present dyslipidaemia and homozygous familial hypercholesterolaemia. The present Claim 41; SEQ ID NO 48; 253pp; English

sequence represents a nitrilase environmental sample.

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                       ArgileTyrAlaLysThrAlaAlaAspProAlaGlyHisTyrSerArgProAspValThr
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                                                                                      The present invention relates to a method for preparating an atorvastatin intermediate known as (R) ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate (R)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid with a polypeptide having nitrilase activity, converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters. Atorvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia, mixed dyslipidaemia and homozygous familial hypercholesterolaemia. The present sequence represents anitrilase polypeptide obtained from an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (R)-ethyl 4-cyano-3-hydroxybutyric acid; epichlorohydrin; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric acid; amixed hyperlipidaemia; homozygous familial hypercholesterolaemia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglutaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
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                                                                 sequence represents a environmental sample.
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The invention describes an isolated or recombinant polypeptide (I) CC comprising amino acids having a sequence at least 50 % identical to a comprising amino acids having a sequence at least 50 % identical to a cC sequence (SI) available in electronic form (EC) from the following web cC variants, having one or more mutations at residue 55 Lys, Gly or Glu, at residue 60 glutamic acid, at residue 11 Ser, their combinations or cF ragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3- (C hydroxybutyric acid, hydrolysing a nitrile to a carboxylic acid; hydrolysing an aminonitrile moiety; producing a chiral alpha-hydroxy acid molecule or a chiral amino acid molecule; producing an (S)-ethyl 4-cyano-3-hydroxybutyric acid, producing an (R)-producing an (R)-mandelic acid or (S)-mandelic acid, producing (S)-phenyl lactic acid derivative; modifying a molecule; and for identifying a modified compound. The inventive method is useful for monitoring or determining % enanntiomeric excess or % diasteromeric excess. (I) is useful in the production of food additives and drug intermediates. This is the amino acid sequence of a nitrilase of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07-DEC-2000;
28-DEC-2000;
21-JUN-2001;
30-JUL-2001;
22-JAN-2002;
15-MAY-2002;
09-SEP-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (R)-ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis; carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile moiety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S)-ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-mandelic acid; hactic acid derivative; (R)-phenyl lactic acid derivative; % enantiomeric excess; % diasteromeric excess; food additive; drug intermediate; nitrilase.
                                                                                                                                                                                                                                                                                                                                                     Novel isolated or recombinant polypeptide useful in production of food additives.
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                                     CGCATCCTTGCTAAAATGGCGGCAGACCCTGCTGGTCATTATTCCCCGTCCCGACATTACT
       CCTTACGCTTTGGGTAAAGCGTCTGAGACGGGTGCGCAACTCGAA 1005
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Search completed: April 27, 2006, 01:18:29 Job time : 177.493 secs THIS PAGE BLANK (USPTO)

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-Q=/abss/ABSSWEB spool/US99751299/runat_26042006 090039 18719/app_query.fasta_1
-DB=Issued_Patents AA -QFWT=fastan -SUFFIX=xai -MINMATCH=0.1 -LODECL=0
-LOOPEXT=0 -UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi
-LIST=45 -DCCALIGN=200 -THR SCORE=pct -THR MAX=100 -THR MIN=0 -ALICN=15
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-DEV TIMEOUT=120 -VARN TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6
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ALIGNMENTS

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US-08-690-493-1

Sequence 1, Application US/08690493

Patent No. 5872000

GENERAL INFORMATION:
APPLICANT: Yu, Fujio
TITLE OF INVENTION: No. 5872000el Nitrilase Gene
NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
ADDRESSEE: Steinberg, Raskin & Davidson, P.C.
STREET: 1140 Avenue of the Americas
CITY: New York
STATE: New York
STATE: New York
COMPUTER: READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: DC-DOS/MS-DOS
SOFTWARE: MS-DOS Editor
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/690,493
FILING DATE: 31 JUL-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US-728
FILING DATE: 31-JUL-1995
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; OTHER INFORMATION: Xaa is
US-08-690-493-1
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TOPOLOGY: linear
MOLECULE TYPE: prott
ORIGINAL SOURCE:
ORGANISM: Gordona
STRAIN: MA-1
CELL TYPE: unicel:
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GlyAspAlaGlyTrpGluAlaPheAlaAspThrGluGluLysArgGlnLeuIleHisLys
                                                                                                        GCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGTCGTGTGCGCTCGTT
                                                                                                                                                                                    CAACCGCTAACAAAATACGCTTTGTATGCACAAAATGAAGAGATTCATTGTGCGGCTTGG
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                        GGTGGTGGACACTCACGTATCATAGGGCCTGATGGTGGTGACTTGGTCGCGCCTCTTGCC
                                                                    TCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCATGCGTTGCTTCTGGCT
                                                                                          ProSerPheSerIlePheProGlyAlaValTyrAlaLeuGlyProGluValAsnThrAla
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Percent Similarity:
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US-09-806-876A-2
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US-09-806-876A-2
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CURRENT APPLICATION NUMBER: US/09/806,876A
CURRENT FILING DATE: 2001-05-21
PRIOR APPLICATION NUMBER: Germany/19848129.
PRIOR FILING DATE: 1998-10-19
NUMBER OF SEQ ID NOS: 9
SOFTWARE: WordPerfect version 6.1
SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: A process for preparing chiral carboxylic acids TITLE OF INVENTION: from nitriles using a nitrilase or microorganisms TITLE OF INVENTION: which comprise a gene for the nitrilase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Ress-Loeschke, MarpLICANT: Friedrich, Thoma APPLICANT: Hauer, Bernhard
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GAACGGGTCGGTGGCACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGACACCC
                                                                                                                                PheGlnArgIleAlaGlnAlaAlaArgThrLeuGlyIlePheIleAlaLeuGlyTyrSer
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Alignment Scores:
Pred. No.:
Score:
Score:
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
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APPLICANT: DiCosimo, Robert
APPLICANT: DiCosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR TILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
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US-09-823-373-5
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LENGTH: 369
TYPE: PRT
ORGANISM: Acidovorax
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RESULT 4
US-09-823-373-14
; Sequence 14, Application U
; Patent No. 6870038
; GENERAL INFORMATION:
; APPLICANT: Chauhan, Sarit
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AspAlaGluGlyIleLeuTyrAlaGluIleAspLeuGluGlnIleLeuLeuAlaLy8Ala
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GlyIleIleGluGluAlaAlaGlnLysGlyAlaSerLeuIleAlaPheProGluValPhe
                                                                                                                           ArgAsnHisThrProValHisArgIleGlyIleAspGlyArgLeu
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SEQ ID NO 14
LENGTH: 369
TYPE: PRT
ORGANISM: Acidovorax facilis
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APPLICANT:
APPLICANT:
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APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of a Gene for Nitrilase
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/99/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
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TCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGTCGTGTGCGCTCGTTTCA 678
                                                      ThrHisAspPheAlaPheGlyArgValGlyGlyLeuAsnCysTrpGluHisPheGlnPro
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                                                                                                                LeuSerLysPheMetMetTyrSerLeuGlyGluGlnValHisValAlaSerTrpProAla
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Payne, Mark
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Patent NO. 5629190
PITLE OF INVENTION: Expl
TITLE OF INVENTION: to b
TITLE OF INVENTION: to b
TITLE OF INVENTION: 1ate
NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
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US-08-447-702-5
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; Patent No. 5629190
; GENERAL INFORMATION:
APPLICANT: Petre, I
APPLICANT: Cerbelee
; APPLICANT: Levy-Sch
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TOPOLOGY: 1:
; MOLECULE TYPE:
US-08-447-702-5
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FILING DATE: 10-FEB-1994
PRIOR APPLICATION DATA:
APPLICATION UDMBER: FR 92-09-
FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
NAME: MCGOWAIN, MAICOLM K.
REGISTRATION NUMBER: 39,300
REFERENCE/DOCKET NUMBER: 0030
                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, V.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/447,702
FILING DATE: 23-MAY-1995
CLASSIFICATION: 530
                                                                    INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 354 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                           TELECOMMUNICATION INFORMATION: TELEPHONE: 703-836-6620
                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
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STREET: P.
                                                   TYPE: amino acid
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                                                                       354 amino acids
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Cerbeleaud, Edith
Levy-Schil, Sophie
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                                                                                                                         703-836-2021
                  protein
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US-09-751-299-3 (1-1014) x US-08-447-702-5 (1-354)
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| ValHisValAlaSerTrpProAlaPhe------ValProLysGlyAlaValSerSerArg
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AlaGlyHisTyrSerThrProGlyPheLeuSerLeuThrPheAspGlnSerGluHisVal
                                                                 IleAlaValAlaGluIleAspLeuAsnGlnIleIleTyrGlyLysTrpLeuLeuAspPro
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DB:
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US-08-465-615-5
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US-09-751-299-3 (1-1014) x US-08-465-615-5 (1-354)
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TELEFAX: (703) 836-2021
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
NAME: Crane-Feury, Sharon E
REGISTRATION NUMBER: 36,113
REFERENCE/DOCKET NUMBER: 003025-015
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/465,615
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 22313-1404
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION: 435
PRIOR APPLICATION NUMBER: US 08/194,
FILING DATE: 10-FEB-1994
APPLICATION NUMBER: FR 9209882
FILING DATE: 10-AUG-1992
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                                                                     Application US/08465615
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LEVY-SCHIL, Sophie
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ACTIVITY, DNA SEQUENCE CODING FOR SAID POLYPEPTIDES,
EXPRESSION CASSETTES AND HOST MICROORGANISMS ENABLING
TO BE OBTAINED, AND METHOD OF CONVERTING NITRILES TO
CARBOXYLATES BY MEANS OF SAID POLYPEPTIDE
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US-09-902-540-14601
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                                                                                                              GENERAL INFORMATION:
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Patent No. 6833447
APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Genome
FILE REFERENCE: 38-10 (15849)B
CURRENT APPLICATION NUMBER: US/09/902,540
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LENGTH: 267
TYPE: PRT
ORGANISM: Myxococcus xanthus
S-09-902-540-14601
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PRIOR APPLICATION NUMBER: 60/217,
PRIOR FILING DATE: 2000-07-10
NUMBER OF SEQ ID NOS: 16825
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                                                                                                                                                        TGTGCGGCTTGGCCGAGCTTTAGCCTTTATCCTAATGCGGCGAAAGCCCCTGGGGCCTGAT
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 GCGCCTCTTGCCGAAAATGAAGAGGGTATTCTCTACGCAAACCTTGATCCT
                               AlaAsnArgValThrTyrGlyHisAlaLeuValValAspProTrpGly-----LeuVal
                                                                                                                                                                                                                                                                                      TyrAspLeuArgPhePro---GluLeuTyrArgArgLeuSerArgGluGlyAlaThrLeu 172
                                                                                                                                                                                                                                                                                                                    TGGGAGCACCTTCAACCGCTAACAAAATACGCTTTGTATGCACAAAATGAAGAGATTCAT
                                                              TTGCTTCTGGCTGGTGGACACTCACGTATCATAGGGCCTGATGGTGGTGACTTGGTC 783
                                                                                                                            TGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCATGCG 723
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SEQ ID NO 2
LENGTH: 315
TYPE: PRT
ORGANISM: ARTIFICIAL SEQUENCE
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PRIOR FILING DATE: 2001-03-26
NUMBER OF SEQ ID NOS: 14
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CURRENT APPLICATION NUMBER: US/10/105,294B
CURRENT FILING DATE: 2000-08-11
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                                                                                                                                                                  HisGlyAspIleValGlyLysTyrArgLysMetHisLeuProGlyHisAlaAspAsnArg
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              PheGlyValPheAspPheHisGlyValGlnValGlyMetCysLeuCysAsnAspArgArg
                                                      CTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGCTGTTGGGAGCACCTT
                                                                                          GluGlyLeuProAsnGlnHisLeuGluLysLysTyrPheArgGluGlyAsp---LeuGly
                                                                                                                                ----TTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAAGGGGATGGTTCATCG
                                                                                                                                                                                                        AATGGTGACACCATTGGGGCCCGGCGAAAG-----
                                                                                                                                                                                                                                            GlyTyrAlaGluLeuThrSerAspGluLysArgTyrAsnThrSerIleLeuValAsnLys 113
                                                                                                                                                                                                                                                                                                                                                                GGCCCTCAAGCTAAGCGCATTTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTG
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SIEMANN-HERZBERG, MARTIN
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                                                                                                          CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/917,111
FILING DATE: 19920807
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION UMUBER: JP 400848/1990
FILING DATE: 07-DEC-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 407922/1990
FILING DATE: 27-DEC-1990
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APPLICANT:
                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIIM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                  PILING DATE: 27-DEC-
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Yajima, Kazuyoshi
TITLE OF INVENTION: PROCESS
TITLE OF INVENTION: ACIDS
                                  PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES:
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CITY: W
                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                STATE: D.C.
ZIP: 20036-8218
APPLICATION NUMBER: FILING DATE: 06-DE
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Takano, Masayuki
Ikenaka, Yasuhiro
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                                                        11-APR-1991
                                                                          JP 078840/1991
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ATTORNEY/AGENT INFORMATION

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
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INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
LENGTH: 311 amino acids
TYPE: AMINO ACID
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SerLeuThrGlnPheHisAsnHisLeuSerMetGlnAlaGlyAlaTyrGlnAsnSerThr 228
                               GCCCTGGGGCCTGATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGC
                                                                 GluMetValMetLeuGlyTyrAsnThrProTyrAspHisThrGlyHisAspAspIleAsp
                                                                                                GAGATTCATTGTGCGGCTTGG------CCGAGCTTTAGCCTTTATCCTAATGCGGCGAAA
                                                                                                                                  CysIleCysAsnAspArgArgTrpProGluThrTyrArgValMetGlyLeuGlnGlyVal
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                                                                                                                                                                                                     GluProGlyAsp---LeuGlyPheGlyValTrpArgAlaPheAspGlyValMetGlyMet 168
                                                                                                                                                                                                                                     GGCGAAGGGGATGGTTCATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGC
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Matches:
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US-07-917-111-6
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                                                                                                          APPLICATION NUMBER: JP 078840/1
FILING DATE: 11-APR-1991
PRIOR APPLICATION DATA: PCT/JP91/01
APPLICATION UNMBER: PCT/JP91/01
FILING DATE: 06-DEC-1991
ATTORNEY/AGENT INFORMATION:
NAME: Player Esq., William E.
NAME: Player Esq., William E.
REGISTRATION UNMBER: P-500-
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION: APPLICANT: Namba,
TELEX: 440706
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 311 amino acid
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APPLICANT:
APPLICANT:
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 44
FILING DATE: 27-DEC-1990
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDLIM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOSTWARE: PatentIn Release #1.0, Version
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/917,111
FILLING DATE: 19920807
CT. ASSISTED TOTAL
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TITLE OF INVENTION: PROCESS
TITLE OF INVENTION: ACIDS
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CORRESPONDENCE ADDRESS:
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CITY: Washington
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Best Local Similarity:
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MOLECULE TYPE: process.

ORIGINAL SOURCE:

ORIGINAL SOURCE:

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STRAIN: K
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TOPOLOGY: linear
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GACGAAAAGCATGCGTTGCTTGGCTGGTGGTGGACACTCACGTATCATAGGGCCTGAT :::||| || || || |||::: |||
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                                                                                                                                                                                                      GAGATTCATTGTGCGGCTTGG-----CCGAGCTTTAGCCTTTATCCTAATGCGGCGAAA 588
                                                                                                                                                                                                                                    CysIleCysAsnAspArgArgTrpProGluThrTyrArgValMetGlyLeuGlnGlyVal 188
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Patent No.
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS
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APPLICANT:
                                                                                                                                                                                                                                                 FILING DATE: 11-APR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP91/01696
FILING DATE: 06-DEC-1991
ATTORNEY/AGENT INFORMATION:
NAME: Player Esq., William E.
                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 07/917,111
FILING DATE: 07-AUG-1992
APPLICATION NUMBER: JP 400848/1990
FILING DATE: 07-DEC-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 407922/1990
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MEDIUM TYPE: Floppy disk
COMPUTER: ISM PC compatible
COMPUTER: DM PC COMPOSIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
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ADDRESSEE: Wegner, Cantor, Mueller & Player
STREET: 1233 20th Street, N.W., Suite 300
                  MOLECULE TYPE:
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PRIOR APPLICATION DATA:
APPLICATION NUMBER:
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TITLE OF INVENTION: PROCESS FOR
TITLE OF INVENTION: ACIDS
NUMBER OF SEQUENCES: 6
                                                                                                                                                                                          TELECOMMUNICATION INFORMATION:
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                                      TOPOLOGY:
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CITY: Washington
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                                                                                                                                                                                                                               NAME: Player Esq., William REGISTRATION NUMBER: 31,409
                                                                         LENGTH:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValAsnAlaAlaAlaGlnMetGlyProIleSerArgSerGluThrArgLysAspThr
                                                                                                                                                             GACGAAAAGCATGCGTTGCTTCTGGCTGGTGGTGGACACTCACGTATCATAGGGCCTGAT
                                                                                                                                                                                                                                                                                                                          GluMetValMetLeuGlyTyrAsnThrProTyrAspHisThrGlyHisAspAspIleAsp
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AspLeuAspMetGlyLysArg---TyrArgGluThrIlePheAspPheAlaArgHis---
                                AACCTTGATCCTGGAGTACGCATCCTTGCTAAAATGGCGGCAGACCCTGCTGGTCATTAT
                                                               SerGlyGluIleValAlaMetAlaCysThrIleGluAspGluIleIleThrAlaArgCys
                                                                                             GGTGGTGACTTGGTCGCGCCTCTTGCCGAAAATGAAGAGGGTATTCTCTACGCA-----
                                                                                                                            GluGluGlySerLysMetVal------GlyGlnSerValIleValAlaPro---
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Matches:
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RESULT 12
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Percent Similarity:
Best Local Similarity:
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                                               Alignment Scores: Pred. No.:
                                                                                                    US-08-479-638-6
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SIP: 20036-8218

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

COMPUTER: FROM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/479,638
                                                                                                                                                                                                                                                                  TELEX: 440706
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/917,111
FILING DATE: 07-AUG-1992
APPLICATION NUMBER: UP 400848/1990
FILING DATE: 07-DEC-1990
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
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APPLICANT:
                                                                                                                                               ORIGINAL SOURCE:
                                                                                                                                                                   MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION: TELEPHONE: 202-887-0400
                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 06-DEC-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 11-APR-1
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 311 amino acids
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APPLICATION NUMBER: JP 078840/1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: PROCES
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: FILING DATE: 27-DEC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: 1233 20th
CITY: Washington
                                                                                                                  STRAIN:
                                                                                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 31,409
REFERENCE/DOCKET NUMBER: P-
                                                                                                                                 ORGANISM:
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                                                                                                                                                                                                                                                                                                     TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                     NAME: Player Esq., William E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
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                                                                                                                KNK 003A (FERM BP-3181)
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                                                                                                                                                                                                                                                                                                     202-835-0605
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ÆNTION: PROCESS FOR
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                                                                                                                                                                                   linear
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27-DEC-1990
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Length:
Matches:
Conservative:
Mismatches:
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; REGISTRATION ; REFERENCE/DO	292 ArgGluProAspAlaTyrArgLeuIleValGluArgLysGlyAlaValPro 308	D D
; ATTORNEY/AGENT	TCCCGTCCCGACATTACTCGCTAATAGATCGCAGCCCTAAATTACCCG	Ş
; APPLICATION ; FILING DATE:	AspLeuAspMetGlyLysArgTyrArgGluThrIlePheAspPheAla.	6
; FILING DATE: ; PRIOR APPLICAT	AACCTTGATCCTGGAGTACGCATCCTTGCTAAAATGGCGGCAGACCCTGCTGGTCATTAT	\$ 5
; PRIOR APPLICATION ;	SerGlyGlufieValAlaMetAlaCysThrIleGluAspGluflefleThrAlaArgCys	b B
; APPLICATION ; FILING DATE:	GGTGGTGACTTGGTCGCCGCTCTTGCCGAAAATGAAGAGGGTATTCTCTACGCA	Ş
; FILING DATE:	SluGlySerLysM	용
PRIOR APPLICATION	709 GACGAAAAGCATGCGTTGCTCTGGCTGGTGGTGGACACTCACGTATCATAGGGCCTGAT 768	Ş
; FILING DATE:	229 TrpVallleGlyThrAlaLys	뭥
; FILING DATE:	_ ~	Ş
; FILING DATE:	::: 209	망
; PRIOR APPLICATION ;	589 GCCCTGGGGCCTGATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGC 648	Ş
; FILING DATE:	::: 189 GlumetValMetLeuGlyTyrAsnThrProTyrAspHisThrGlyHisAspAspIleAsp 208	DЪ
PRIOR APPLICATION	CATTGTGCGGCT	ş
APPLICATION :	169 CysIleCysAsnAspArgTrpProGluThrTyrArgValMetGlyLeuGlnGlyVal 188	Db
FILING DATE:	475 TTATGCTGTTGGGAGCACCTTCAACCGCTAACAAAATACGCTTTGTATGCACAAAATGAA 534	Ą
PRIOR APPLICATION	150 GluProGlyAspLeuGlyPheGlyValTrpArgAlaPheAspGlyValMetGlyMet 168	Db
APPLICATION	GAGACGTCTGTTGGAAGG	ş
; FILING DATE:	130 ProGlyHisLysGluProGlnProGlyArgLysHisGlnHisLeuGluLysArgTyrPhe 149	뮹
PRIOR APPLICATION	385AAACCTACTTTGTTGAACGTACTTTGTTC 414	Ş
; FILING DATE:	GlyArgIleValGlyLysTyrArg	DЬ
25	331 AGTCAGTGGTTCATAGGCGATAATGGTGACACCATTGGGGCCCCGGCGAAAGTTTG 384	Ş
OPERATING SY	90 GlyPheTyrLeuGlyTyrAlaGluLeuAlaGluGluGlyGlyArgLysArgArgPheAsn 109	문
MEDIUM TYPE:	283 ATGGTCACCCTGGGGATGAGTGAACGGGTCGGTGGCACCCTTTACATC 330	Ş
2 C	70 LysGluMetProGlyProGluThrGlnProLeuPheAspGluAlaLysArgLeuGluIle 89	융
STATE: D.C.	235GGCCCTCAAGCTAAGCGCATTTCAGATGCAGCCAAGCGGTTGGGAATC 282	8
.∃ 8	57 VallleGluAspGluAlaGluLeuAspSerPheTyrGlu 69	뭥
CORRESPONDENCE	187 GCAATGCAATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGAT 234	Ş
; TITLE OF INVEN	44 PheThrGluLeuAlaLeuThrThrPhePheProArgTrp 56	Дb
;:::	127 TTTCCGGAAACTTGGATTCCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCAGCATGG 186	Ş
; APPLICANT: Ta ; APPLICANT: Ok	::: 24 ValArgArgLeuTeAlaLeuMetArgGluAlaLysAlaArgGlySerAspLeuValVal 43	B
	67 GTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGATCGCC 126	Ş
	::: 4 ValAsnAlaAlaAlaGlnMetGlyProIleSerArgSerGluThrArgLy8AspThr 23	멍
ž	13 ATCAAGGTCGCCTGCGTGCAAGCCGGCCCCGATCTACATGGATTTGGAGGCGACG 66	Ş
	US-09-751-299-3 (1-1014) x US-08-479-638-6 (1-311)	us-09-
87	Match: 7.6% Indels: 62 1 Gaps: 15	Query Match: DB:

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APPLICATION NUMBER: PCT/JP91/01696
FILLING DATE: 06-DEC-1991
PRIOR APPLICATION NUMBER: JP 407922/1990
FILLING DATE: 27-DEC-1990
PRIOR APPLICATION NUMBER: JP 407922/1990
FILLING DATE: 27-DEC-1990
PRIOR APPLICATION NUMBER: JP 078840/1991
FILLING DATE: 11-APR-1991
PRIOR APPLICATION NUMBER: JP 140051/1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 140051/1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 212692/1992
FILLING DATE: 10-JUN-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 212692/1992
FILLING DATE: 10-AUG-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 340078/1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 340078/1992
ATTORNEY/AGENT INFORMATION:
NAME: Wegner, Harcold C.
REGISTRATION NUMBER: 74129/127/AOPA
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(PE: Floppy disk;

IBM PC compatible;

3 SYSTEM: PC-DOS/MS-DOS;

PATCHTIN Release #1.0, Version #1.25

LICATION DATA;

CON NUMBER: US/08/294,871A

TIE: 22-AUG-1994
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CATION: 435
CATION: 435
CON NUMBER: US 07/971,758
TE: 12-APR-1993
TE: 12-APR-1993
CATION DATA:
ON NUMBER: US 07/917,111
TE: 07-AUG-1992
CATION DATA:
ON NUMBER: US 08/211,641
TE: 11-APR-1994
TE: 11-APR-1994
ON NUMBER: JP 400848/1990
TE: 07-DEC-1990
TE: 07-DEC-1990
CATION DATA:
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Ikenaka, Yasuhiro
Nanba, Hirokazu
Takano, Masayuki
Yajima, Kazuyoshi
Yamada, Yukio
Takahashi, Satomi
Okubo, Kazuma
Yamada, Kazumiko
Hiraishi, Yoshiro
Hiraishi, Yoshiro
Hiraishi, Yoshiro
JENTION: Process for P
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ICE ADDRESS:
Foley & Lardner
000 K Street, N.W.
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DB:
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Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-09-751-299-3 (1-1014) x US-08-294-871A-70 (1-311)
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TELEX: 904136
INFORMATION FOR SEQ ID NO: 70
SEQUENCE CHARACTERISTICS:
LENGTH: 311 amino acids
TYPE: amino acid
TOPOLOGY: linear
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TELEPHONE: (202) 672-5300
TELEFAX: (202) 672-5399
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13 ATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGAT-----TTGGAGGCGACG
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                                 TTCGTACTAGCGTCGTGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGAT 708
                                                                                                                                                                         GAGATTCATTGTGCGGCTTGG-----CCGAGCTTTAGCCTTTATCCTAATGCGGCGAAA
                                                                                                                                                                                                          CysIleCysAsnAspArgArgTrpProGluThrTyrArgValMetGlyLeuGlnGlyVal 188
                                                                                                                                                                                                                                             TTATGCTGTTGGGAGCACCTTCAACCGCTAACAAATACGCTTTGTATGCACAAAATGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyPheTyrLeuGlyTyrAlaGluLeuAlaGluGluGlyGlyArgLysArgArgPheAsn 109
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                                                                                                     GCCCTGGGGCCTGATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGC
                                                                                                                                                                                                                                                                              GluProGlyAsp---LeuGlyPheGlyValTrpArgAlaPheAspGlyValMetGlyMet
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTTCTTTGGCTTGACTCACCAGCATGG 186
TrpvalileGlyThrAlaLys-
                                                                  SerLeuThrGlnPheHisAsnHisLeuSerMetGlnAlaGlyAlaTyrGlnAsnSerThr 228
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Matches:
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CysGlyThr 238
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RESULT 14
US-08-876-398A-70
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APPLICANT: NANBA, Hirokazu
APPLICANT: TAKANO, Masayuki
APPLICANT: YAJIMA
                                                                                                                                                                                                                                                       CLASSIFICATION: 435
CLASSIFICATION: 435
PRIOR APPLICATION NUMBER: US 08/211
FILING DATE: 11-APR-1994
PRIOR APPLICATION NUMBER: WO PCT/JP
PRIOR APPLICATION NUMBER: WO PCT/JP
FILING DATE: 05-AUG-1993
PRIOR APPLICATION NUMBER: JP 340078
PRIOR APPLICATION NUMBER: JP 340078
PRIOR APPLICATION NUMBER: JP 212692
PRIOR APPLICATION NUMBER: JP 212692
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                                                                                                                                                           TELEFAX: (202) 672-539
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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APPLICANT: TAKAHASHI, Satomi
TITLE OF INVENTION: THERMOSTABILITY AND USE THEREOF
NUMBER OF SEQUENCES: 70
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: U.S.A.
ZIP: 20007-5109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE: 16-JUN-19
                               MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                   TOPOLOGY:
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                                                                                                                                   LENGTH:
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Query Match:
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AACCTTGATCCTGGAGTACGCATCCTTGCTAAAATGGCGGCAGACCCTGCTGGTCATTAT :::|||||| ||| |||
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SerGlyGluIleValAlaMetAlaCysThrIleGluAspGluIleIleThrAlaArgCys
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GENERAL INFORMATION:
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                                                                                                                                                                                                APPLICATION NUMBER: JP 400848/1990
FILING DATE: 07-DEC-1990
PRIOR APPLICATION DATA:
APPLICATION UNMBER: PCT/JP91/01696
FILING DATE: 06-DEC-1991
PRIOR APPLICATION DATA:
APPLICATION UNMBER: JP 407922/1990
FILING DATE: 27-DEC-1990
PRIOR APPLICATION NUMBER: JP 078840/1991
FILING DATE: 11-APR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 078840/1991
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 07/917,111
FILING DATE: 07-AUG-1992
PRIOR APPLICATION UNMBER: US 08/211,641
FILING DATE: 11-APR-1994
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Hiraishi, Yoshiro
TITLE OF INVENTION: Immobilized
TITLE OF INVENTION: Process for
NUMBER OF SEQUENCES: 70
CORRESPONDENCE ADDRESS:
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                                   FILING DATE: 10-AUG-
PRIOR APPLICATION DATA:
                                                                                     APPLICATION NUMBER: 10-JUN-
FILING DATE: 10-JUN-
PRIOR APPLICATION DATA:
                                                                                                                          APPLICATION NUMBER: JP 140051/1991
FILING DATE: 12-JUN-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP92/00739
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APPLICATION NUMBER: US 0
FILING DATE: 12-APR-1993
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APPLICATION NUMBER: FILING DATE: 05-AU
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                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION:
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Hiraishi, Yoshiro
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Nanba, Hirokazu
Takano, Masayuki
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IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
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                                                      10-AUG-1992
05-AUG-1993
                                                                        JP 212692/1992
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE: (202) 672-5300
TELEPAX: (202) 672-5399
TELEX: 904136
INFORMATION FOR SEQ ID NO: 46:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: JP 340078/1992
FILING DATE: 21-DEC-1992
ATTORNEY/AGENT INFORMATION:
NAME: Wegner, Harold C.
REGISTRATION NUMBER: 25,258
REFERENCE/DOCKET NUMBER: 74129/127/AOPA
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 672-5300
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TYPE: amino acid
TOPOLOGY: linear
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118 CTGATCGCCTTTCCGGAAACTTGGATTCCAGGCTACCCCATGGTTTCTTTGGCTTGACTCA 177
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127 IleHisLeuProGlyHisLysGluTyrGluAlaTyrArgProPheGlnHisLeuGluLys 146
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67 PheTyrGluThrGluMetProGlyProValValArgProLeuPheGluLysAlaAlaGlu 86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     178 CCAGCATGGGCAATGCAATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41 PheIleValPheProGluLeuAlaLeuThrThrPhe-----
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            58 GAGGCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGT 117
                                                                                                                                                                                                                                                                                                                                                                                                           -----PheProArgTrpTyrPheThrAspGluAlaGluLeuAspSer 66
 AATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGTCGTGT 666
                               GlnHisAspHisLeuThrSerPheHisHisLeuLeuSerMetGlnAlaGlySerTyrGln 225
                                                                                            ArgGlyAlaGluIleIleCysGlyGlyTyrAsnThrProThrHisAsnProSerValPro 205
                                                                                                                          CAAAATGAAGAGATTCATTGTGCGGCTTGG------
                                                                                                                                                        MetGlyMetPheIleCysAsnAspArgArgTrpProGluAlaTrpArgValMetGlyLeu 185
                                                                                                                                                                                      CTGGGTGGCTTATGCTGTTGGGAGCACCTTCAACCGCTAACAAAATACGCTTTGTATGCA 525
                                                                                                                                                                                                                      ArgTyrPheGluProGlyAsp---LeuGlyPheProVaiTyrAspValAspAlaAlaLys 165
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Mismatches:
Indels:
Gaps:
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Matches:
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Search completed: April 27, 2006, 01:40:40 Job time : 42.527 secs

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Command line parameters:

-MODEL=frame+ n2p.model -DEV=xlp
-Q=/abss/ABSSWEB spool/US09751299/runat 26042006_090042_18780/app_query.fasta_1
-DB=Published_Applications_AA_Main -QFMT=fastan -SUFFIX=rapbm -MINMATCH=0.1
-DOPCL=0 -LOOPEXT=0 -UNITS=bits -START=1 -END=-1 -MATRIX=blosum62
-TYANS=human40.cdi -LIST=45 -DOCALIGN=200 -THR SCORE=pct -THR MAX=100
-THR MIN=0 -ALIGN=15 -MODE=LOCAL -OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0
-MAXLEN=200000000 -HOST=abs802p
-USER=US09751299 @CGN 1 1 405 @runat 26042006 090042 18780 -NCPU=6 -ICPU=3
-NORMAP -NEG SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG -DEV TIMEOUT=120
-MARN_TIMEOUT=30 -THREADS=1 -NGAPOP=10 -NGAPEXT=7
-MARN_TIMEOUT=30 -THREADS=1 -TOPCAC -DRINEYT=7
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Maximum
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Maximum Match 100%
Listing first 45 summaries
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
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DB
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seq length:
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Match
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1: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*

2: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*

3: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*

4: /cgn2_6/ptodata/1/pubpaa/US10B_PUBCOMB.pep:*

5: /cgn2_6/ptodata/1/pubpaa/US11B_PUBCOMB.pep:*
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Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
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        GenCore version 5.1.7 (c) 1993 - 2006 Biocceleration
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    US-09-751-299-4
US-10-146-772-386
US-10-440-523-386
US-10-440-523-386
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US-10-146-772-386
US-10-146-772-58
US-10-146-772-58
US-10-241-742-58
US-10-241-742-58
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US-10-440-523-48
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Sequence 4, Appli
Sequence 386, App
Sequence 386, App
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US-10-440-523-212 US-10-440-503-212	-10-241-742-21	-10-146-772-21	-10-461-925-	-10-440-503-	-10-440-523-	-10-241-742-	-10-146-772-	-10-461-925-33	-10-440-503-33	-10-440-523-33	-10-241-742-33	-10-146-772-33	-10-461-925-30	-10-440-503-30	-10-440-523-30	-10-241-742-30	-10-146-772-30	0-461-925-	-10-440-503-14	-10-440-523-14	-10-241-742-14	-10-146-772-14	-10-461-925-29	0-440-503-29	-10-440-523-29	-10-241-742-29	-10-146-772-29	-10-461-925-5	0-461-925-4	-10-440-503-5	-10-440-503-4	0-440-523-5
e 212, Ap e 212, Ap	equence 212, Ap	e 212, Āp	equence 6, Ar	quence 6, Appl	equence 6, Appl	equence 6, Appl	equence 6, Appl	equence 334, Ap	equence 334, Ap	equence 334, Ap	equence 334,	equence 334, Ap	equence 306, Ap	equence 306, Ap	equence 306, Ap	equence 306, Ap	equence 306, Ap	quence 140, Ap	equence 292, Ap	equence 292, Ap	equence 292, Ap	equence 292, Ap	equence 292, Ap	equence 58,	equence 48, App	equence 58, App	quence 48,	equence 58, App				

AL I GNMENTS

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PRIOR APPLICATION NUMBER: 60/254,414
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: 60/173,609
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 4
SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 4
LENGTH: 337
TYPE: PRT
ORGANISM: Unknown Organism
               Percent Similarity:
Best Local Similarity:
Query Match:
                                                                        Score:
                                                                                         Pred. No.:
                                                                                                        Alignment Scores:
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US-09-751-299-4
                                                                                                                                                US-09-751-299-4
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Patent No. US20020012974A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Madden, Mark
APPLICANT: Weiner, David P.
APPLICANT: Weiner, David P.
APPLICANT: Chaplin, Jennifer A.
TITLE OF INVENTION: METHODS FOR PRODUCING ENANTIOMERICALLY PURB
TITLE OF INVENTION: ALPHA-SUBSTITUTED CARBOXYLIC ACIDS
FILE REFERENCE: DIVER1440-2
CURRENT APPLICATION NUMBER: US/09/751,299
CURRENT FILING DATE: 2000-12-29
                                                                                                                                                               OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                  FEATURE:
                                                                                                                                                             Description of Unknown Organism: Obtained environmental sample
 2.03e-177
1765.00
100.0%
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96.7%
                                                   Length:
Matches:
Conservative:
                   Mismatches:
Indels:
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                                                                                                                                                                                                                                                                                                                           HisCysAlaAlaTrpProSerPheSerLeuTyrProAsnAlaAlaLysAlaLeuGlyPro
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyAspGlySerSerLeuAlaValPheGluThrSerValGlyArgLeuGlyGlyLeuCys
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APPLICANT: Molan, Alieen
APPLICANT: Modden, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
ITIE OF INVENTION: Nitrilases
FILE REFERENCE: Docket NO. US20030124698A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT APPLICATION NUMBER: US/0309,006
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 99/51,299
PRIOR APPLICATION NUMBER: US 99/51,299
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 386
LENGTH: 337
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; Publication No. US20030124698A1
; GENERAL INFORMATION:
; APPLICANT: Short, Jay
; APPLICANT: Weiner, David
; APPLICANT: Chaplin, Jennifer
; APPLICANT: Chi, Ellen
; APPLICANT: Milan, Aileen
; APPLICANT: Milan, Aileen
; APPLICANT: Medden, Mark
; APPLICANT: Madden, Mark
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Best Local Similarity:
Query Match:
DB:
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; OTHER INFORMATION:
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TYPE: PRT
ORGANISM: Unknown
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                                 AGTGAACGGGTCGGTGGCACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGAC
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APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040002147A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2000-12-28
PRIOR FILING DATE: 2001-6-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2000-12-28
PRIOR FILING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
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SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 386
LENGTH: 337
TYPE: PRT
ORGANISM: Unknown
FEATURE:
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                                      GCGITGCTTCTGGCTGGTGGTGGACACTCACGTATCATAGGGCCTGATGGTGGTGGTGACTTG
                                                                              SerCysAlaLeuValSerGinSerMetIleAspMetLeuCysThrAspAspGluLysHis
                                                                                             TCGTGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCAT
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                          AlaLeuLeuAlaGlyGlyHisSerArgIleIleGlyProAspGlyGlyAspLeu
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APPLICANT: Weiner, David
APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: Milan, Aileen
APPLICANT: Madden, Mark
TITLE OF INVENTION: Mitrilases
FILE REFERENCE: Docket No. US20040014195A1 DIV-013US
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 60/304,144
PRIOR FILING DATE: 2000-12-29
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 2000-12-90
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Best Local Similarity:
Query Match:
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GENERAL INFORMATION:
APPLICANT: Weiner, David Paul
APPLICANT: Chaplin, Jennifer A
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: DeSantis, Grace
APPLICANT: Burk, Mark J.
APPLICANT: McQuaid, Jeffrey
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US-10-40-503-386

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TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE TITLE OF INVENTION: NITRILES AND/OR CYANIDE FILE REFERENCE: 09010-90001

CURRENT APPLICATION NUMBER: US/10/440,503

CURRENT FILING DATE: 2003-05-15

PRIOR APPLICATION NUMBER: US 60/380,737

PRIOR FILING DATE: 2002-05-15

NUMBER OF SEQ ID NOS: 386

SOPTWARE: FastSEQ for Windows Version 4.0

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APPLICANT: Mark J. Burk
APPLICANT: DeSantis, Grace
APPLICANT: Morgan, Brian
APPLICANT: Morgan, Brian
APPLICANT: Zhu, Zoulin
ITILE OF INVENTION: PROCESSES FOR MAKING (R)-ETHYL 4-C
FILE REFERENCE: 09010-270001
CURRENT APPLICATION NUMBER: US/10/461,925
CURRENT FILING DATE: 2003-06-13
PRIOR APPLICATION NUMBER: US 60/389,317
PRIOR FILING DATE: 2002-06-13
PRIOR FILING DATE: 2002-06-28
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FRASTSEQ for Windows Version 4.0
SEQ ID NO 386
LENGTH: 337
TYPE: PRT
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; OTHER INFORMATION: Obtained
US-10-461-925-386
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US-10-461-925-386
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RESULT 7
US-10-146-772-48
US-10-146-772-48
Sequence 48, Application US/10146772
Publication No. US20030124698A1
GENERAL INFORMATION:
APPLICANT: Short, Jay
APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
CURTENT APPLICATION NUMBER: US20030124698A1 DIV
CURRENT FILING DATE: 2002-05-15
CURRENT APPLICATION NUMBER: US 60/309,006
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PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2001-06-21
PRIOR PRILING DATE: 2001-12-28
PRIOR FILING DATE: 2000-12-28
PRIOR PRILING DATE: 2000-12-29
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR PILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOPTWARE: FASESEQ FOR Windows Version 4.0
SEQ ID NO 48
LENGTH: 337
TYPE: PRT
ORGANISM: Unknown
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US-10-146-772-48
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  GATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCG
                                                CATTGTGCGGCTTGGCCGAGCTTTAGCCTTATCCTAATGCGGCGAAAGCCCTGGGGCCT
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Percent Similarity:
Best Local Similarity:
Query Match:
DB:
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FILE REFERENCE: DOCKET NO. US2003012469BA1 DIY
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR PPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR PPLICATION NUMBER: US 60/351,336
PRIOR PPLICATION NUMBER: US 60/300,189
PRIOR PPLICATION NUMBER: US 09/751,299
PRIOR PPLICATION NUMBER: US 09/751,299
PRIOR PPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 2000-12-07
PRIOR PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 1999-12-29
                                                                           Alignment Scores:
Pred. No.:
                                                                                                               ; OTHER INFORMATION: US-10-146-772-58
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US-10-146-772-58
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PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOPTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 58
LENGTH: 337
TYPE: PRT
ORGANISM: Unknown
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APPLICANT: Weiner, Dav
APPLICANT: Chaplin, Jo
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aile
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APPLICANT:
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APPLICANT: Madden, Mark
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ITITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040002147A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 2000-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FastEEQ for Windows Version 4.0
SEQ ID NO 48
LENGTH: 337
TYPE: PRT
ORGANISM: Unknown
FEATURE:
PROPREMATION: Obtained from an environmental san
US-10-241-742-48
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FILLE REFERENCE: DOCKET NO. US20040002147A1 DIV
FILE REFERENCE: DOCKET NO. US20040002147A1 DIV
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2002-07-30
PRIOR FILING DATE: 2002-07-30
PRIOR FILING DATE: 2002-07-30
PRIOR PILING DATE: 2002-01-22
PRIOR PILING DATE: 2002-01-22
PRIOR PILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR PILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-08
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
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Madden, Mark
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SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 58

SEQ ID NO 58

SEQ ID NO 58

SEQ ID NOS: 386

TYPE: PRT
ORGANISM: Unknown
FEATURE:
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PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR PILING DATE: 2000-12-28
PRIOR PILING DATE: 2000-12-28
PRIOR PILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR PILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FRSETSEQ for Windows Version 4.0
SEQ ID NO 48
LENGTH: 337
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APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: DeSantis, Grace
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                                                                                                                                                                                                                                                                                          LENGTH: 337
TYPE: PRT
ORGANISM: Unknown
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TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040014195A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2002-05-15
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No. US20040014195A1
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Sequence 58, Application US/10440523
Publication No. US20040014195A1
GENERAL INFORMATION:
APPLICANT: Short, Jay
APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: DeSantis, Grace
                                                                                                                                         RESULT 12
US-10-440-523-58
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PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/350,189
PRIOR APPLICATION NUMBER: US 60/751,299
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR PILING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR PILING DATE: 1999-12-29
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SEQ ID NO 58
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TYPE: PRT
ORGANISM: Unknown
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APPLICANT: Burk, Mark
TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040014195A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
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APPLICANT: BURK, Mark J.
APPLICANT: McQuaid, Jeffrey
APPLICANT: Stege, Justin
TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THI
FILE REFERENCE: 09010-900001
CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR APPLICATION NUMBER: US 60/380,737
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Pred. No.:
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US-10-440-503-48
; Sequence 48, Application US/10440503
; Publication No. US20040038419A1
; GENERAL INFORMATION:
               Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                             Score:
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; OTHER INFORMATION:
US-10-440-503-48
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APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
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APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: Milan, Aileen
APPLICANT: Burk, Mark J.
APPLICANT: Burk, Mark J.
APPLICANT: Stege, Justin
TITLE OF INVENTION: NITRILES AND KITS FOR DETECTING THE
TITLE OF INVENTION: NITRILES AND/OR CYANIDE
FILE REFERENCE: 09010-900001
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR FILING DATE: 2002-05-15
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
Query Match:
DB:
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GENERAL INFORMATION:
APPLICANT: Weiner, David Paul
APPLICANT: Chaplin, Jennifer An
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: Desantis, Grace
APPLICANT: Burk, Mark J.
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TYPE: PRT
ORGANISM: Unknown
FEATURE:
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GGGGATGGTTCATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGC
                                                                                                                                  ACCATTGGGGCCCGGCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAA
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                                                         GlyAspGlySerSerLeuSerThrPheAspThrProLeuGlyValLeuGlyGlyLeuCys
                                                                                                               ThrAlaGlyLeuArgArgLysLeuLysProThrHisValGluArgThrLeuPheGlyGlu
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Percent Similarity:
Best Local Similarity:
Query Match:
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US-10-461-925-48
; Sequence 48, Application US/10461925
; Publication No. US20040053378A1
; GENERAL INFORMATION:
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                                                                                                                                          Score
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                                                                                                                                                                                                                                                                   SOFTWARE: FastSEQ for Windows Version SEQ ID NO 48 LENGTH: 337
                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/10/461,925
CURRENT FILLING DATE: 2003-06-13
PRIOR APPLICATION NUMBER: US 60/389,317
PRIOR FILING DATE: 2002-06-13
PRIOR APPLICATION NUMBER: US 60/392,944
PRIOR FILING DATE: 2002-06-28
NUMBER OF SEO ID NOS: 386
                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Mark J. Burk
APPLICANT: DeSantis, Grace
APPLICANT: Morgan, Brian
APPLICANT: Zhu, Zoulin
TITLE OF INVENTION: PROCESSES FOR MAKING (R)-ETHYL
FILE REFERENCE: 09010-270001
                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                       ORGANISM: Unknown
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ATGAAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAG 60
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Search completed: April 27, 2006, 01:51:33 Job time : 166.872 secs

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Command line parameters:

-WODEL=frame+ n2p.model -DEV=xlp
-Q=/abss/ABSSWEB gpool/US09751299/runat 26042006 090044_18835/app_query.fasta_1
-Q=/abss/ABSSWEB gpool/US09751299/runat 26042006 090044_18835/app_query.fasta_1
-DB=Published Applications AA New -OPWT=fastan -SUFFIX=Tapbn -MINMATCH=0.1
-LOOPCL=0 -LOOPEXT=0 -UNITS=bits -START=1 -END=-1 -MATRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DOCALIGN=200 -THR SCORE=pct -THR MAX=100
-THR MIN=0 -ALIGN=15 -MODE=LOCAL -OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0
-MAXIEN=2000000000 -HOST=abss02p
-MAXIEN=2000000000 -HOST=abss02p
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Perfect score:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -USER=US09751299 @CGN 1_1_47_@runat_26042006_090044_18835 -NCPU=6 -ICPU=3
-NO_MMAP -NEG_SCORES=0 -WAIT -DSPBLOCK=100 -LONGLOG -DEV_TIMEOUT=120
-WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=0.5 -FGAPOP=6 -FGAPEXT=7
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                                                                                                                                                                                                                                                                                                   score greater than or equal to the score of the result bein and is derived by analysis of the total score distribution.
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                                                                                                                                                                                                   Score
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1: /SIDSS/ptodata/2/pubpaa/USOS_NEW_PUB.pep:*
2: /SIDSS/ptodata/2/pubpaa/USOS_NEW_PUB.pep:*
3: /SIDSS/ptodata/2/pubpaa/USO7_NEW_PUB.pep:*
4: /SIDSS/ptodata/2/pubpaa/PCT_NEW_PUB.pep:*
5: /SIDSS/ptodata/2/pubpaa/USO9_NEW_PUB.pep:*
6: /SIDSS/ptodata/2/pubpaa/USO9_NEW_PUB.pep:*
7: /SIDSS/ptodata/2/pubpaa/USO1_NEW_PUB.pep:*
8: /SIDSS/ptodata/2/pubpaa/USO0_NEW_PUB.pep:*
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length: 2000000000
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Ygapop 10.0 , X
Fgapop 6.0 , I
Delop 6.0 , I
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Ygapext
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                  US-10-537-075-7

US-10-919-182-18

US-10-919-182-16

US-10-919-182-6

US-10-919-182-6

US-10-919-182-12

US-10-919-182-14

US-10-919-182-14

US-10-919-182-18
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18, Appl
4, Appli
6, Appli
12, Appli
12, Appli
14, Appli
8, Appli
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20687, A
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ALIGNMENTS

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APPLICANT: Kesseler, Maria
APPLICANT: Zelinski, Thomas
APPLICANT: Hauer, Bernhard
ITILE OF INVENTION: L-RHANNOSB-INDUCIBLE EXPRESSION SYSTEMS
FILE REFERENCE: 12810-00091-US
CURRENT APPLICATION NUMBER: US/10/537,075
CURRENT FILING DATE: 2005-06-01
PRIOR APPLICATION NUMBER: PCT/EP2003/013367
PRIOR APPLICATION NUMBER: DE 102 56 381.0
PRIOR FILING DATE: 2003-11-27
PRIOR FILING DATE: 2003-12-02
NUMBER OF SEQ ID NOS: 19
                                               Percent Similarity:
Best Local Similarity:
Query Match:
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US-10-537-075-7
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; TYPE: PRT
; ORGANISM: Alcaligenes
US-10-537-075-7
US-09-751-299-3 (1-1014) x US-10-537-075-7 (1-356)
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Matches:
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 Application US/10919182
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APPLICANT: B.I. duPont de Nemours and Compan
APPLICANT: Di Cosimo, Robert
APPLICANT: D'Osimo, Robert
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYC
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 18
LENGTH: 369
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Best Local Similarity:
Query Match:
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CTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGACACCATTGGGGCCCCGGCGAAAG
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                                                              MetSerProLeuGlnProAspValPheGln---LeuSerIleGluAlaAsnAlaThrVal
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APPLICANT: E.I. duPont de Nemours and Compan
APPLICANT: Di Cosino, Robert
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYC
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION UNMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 16
LENGTH: 369
TYPE: PRT
ORGANISM: Artificial sequence
PEATURE:
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Best Local Similarity:
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                                                                                    CGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCTCAAGCTAAGCGCATTTCAGAT
                                                                                                                AlaThrValGlnAlaGluProValTrpLeuAspAlaAspAlaThrIleAspLysSerIle
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                                                                                                                                                                        SOFTWARE: PatentIn version 3.2 SEQ ID NO 4
                                                                                                                                                                                                                                                                                                                                   Sequence 4, Application US/10919182 Publication No. US20060035352A1 GENERAL INFORMATION:
                                                                                                                                                                                               APPLICANT: B.I. duPont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
                                                                                                                               TYPE: PRT
ORGANISM: Acidovorax
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Sequence 6, Application US/10919182
Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. dupont de Nemours and
APPLICANT: Di Cosimo, Robert
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Best Local Similarity:
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APPLICANT: O'Keefe, Daniel
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILLING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 6
LENGTH: 369
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  LeuSerLysPheMetMetTyrSerLeuGlyGluGlnValHisValAlaSerTrpProAla
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                  TCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGTCGTGTGCGCTCGTTTCA
                                                                                                           MetSerProLeuGlnProAspValPheGln---LeuSerIleGluAlaAsnAlaThrVal
                                                                                                                                      TTTAGC----CTTTATCCTAATGCGGCGAAAGCCCTGGGGGCCTGATGTCAATGTAGCGGCC
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LeuLysProThrHisValGluArgThrIleTyrGlyGluGlyAsnGlyThrAspPheLeu
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APPLICANT: E.I. duPont de Nemours and Compan
APPLICANT: Di Cosimo, Robert
APPLICANT: D'Keefe, Daniel
ITILE OF INVENTION: PRODUCTION OF 3-HYDROXYC
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: PatentIn version 3.2
LENGTH: 369
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                               CTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGACACCATTGGGGCCCCGGCGAAAG
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                                                                                                                                   SerArgTyrHisGluAsnSerLeuGluLeuGlyAspAspArgMetArgArgLeuGlnLeu
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APPLICANT: Di Cosimo, Robert
APPLICANT: Dayne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACI
FILLE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 14
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Best Local Similarity:
Query Match:
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US-09-751-299-3 (1-1014) x US-10-919-182-14 (1-369)
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ORGANISM: Artificial sequence
FEATURE:
                                                                                                                                                                                      OTHER INFORMATION: Mutant nitrilase with Phe168 to Lys
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Mismatches:
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US-10-919-182-8
Sequence 8, Application US/10919182
Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. dupont de Nemours APPLICANT: E.I. Cosimo, Robert
APPLICANT: Payne, Mark
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                                                                           ArgAsnHisThrProValHisArgIleGlyIleAspGlyArgLeu
                                                                                                            GCGGCAGACCCTGCTGGTCATTATTCCCGTCCCGACATTACTCGCTTGCTAATAGATCGC
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; APPLICANT: O'Keefe, Daniel
; TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACI; FILE REFERENCE: CL2584 US NA
; FILE REFERENCE: CL2584 US NA
; CURRENT APPLICATION NUMBER: US/10/919,182
; CURRENT FILING DATE: 2004-08-16
; NUMBER OF SEQ ID NOS: 18
; SOFTWARE: PATENTION VERSION 3.2
; SEQ ID NO 8
; LENGTH: 369
; TYPE: PRT
; ORGANISM: Artificial sequence
; FEATURE:
; OFFICE THEODEMATION. Mutant mitrilage NA
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Best Local Similarity:
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ProSerAlaIleGluThrPheCysLeuAsnAspGluGlnArgAlaLeuLeuProGlnGly
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, NAME/KEY: misc feature
; LOCATION: (1)...(333)
; OTHER INFORMATION: Ceres Seq. ID
US-11-096-568A-20687
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US-11-096-568A-20687
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APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 20687
LENGTH: 333
TYPE: PRT
ORGANISM: Zea mays subsp.
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CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
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ACCATTGGGGCCCGGCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAA
                           ValGluArgAlaGlyTyrThrLeuTyrAsnThrValLeuSerPheAspProLeuGlyLys
                                                                                    GluValSerArgLeuSerAlaLeuAlaGlyLysTyrLysValPheLeuValIleGlyVal
                                                                                                                 CAAGCTAAGCGCATTTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATG
                                                                                                                                            GCATGGGCAATGCAATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCT
                                                                                                                                                                                                     ValPheValGlyGlyTyrProHisGlySerThrPheGlyLeuValValGlyAsnArgThr
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                                                                                       Pred. No.:
                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                TITLE OF INVENTION: Sequence-Determined DNA Fragments and Corresponding Polypeptides
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20686
LENGTH: 351
                                                                                                                                                                                                                                                                                                                                                     Sequence 20686, Application US/11096568A Publication No. US20060042240A1 GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
                                                                                                                                              NAME/KEY: misc feature LOCATION: (1)...(351)
OTHER INFORMATION: Cerv
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GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA Fragments and Corresponding Polypeptides
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 6955
LENGTH: 330
TYPE: PRT
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NAME/KEY: misc_feature
LOCATION: (1)..(330)
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|SerIleGlyAsnArgThrValLysGlyArgGluGluPheArgLysTyrHisSerAlaAla 84
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FEATURE:

NAME/KEY: misc feature

LOCATION: (1)...(350)

OTHER INFORMATION: Ceres

US-11-096-568A-6954
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TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 6954
LENGTH: 350
TYPE: PRT
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APPLICANT: Alexandrov, Nickolai et
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Glycine max
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LysAlaGluArgLeuLeuAlaGluAlaThrSerTyrGlySerGlnLeuValValPhePro
                                                                                                                                                                                                          AAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGATCGCCTTTCCG
                                                                                                                                                                                                                                           ValArgAlaThrValValGlnAlaSerThrIlePheTyrAspThrProAlaThrLeuAsp
                              SerIleGlyAsnArgThrValLysGlyArgGluGluPheArgLysTyrHisSerAlaAla
                                                                                                   GluAlaPheValGlyGlyTyrPro-----ArgGlySerAlaPheGlyLeu
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Matches:
Conservative:
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Indels:
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                                                                                                TITLE OF INVENTION: Sequence-Determined DNA I
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 6956
LENGTH: 233
TYPE: PRT
ORGANISM: Glycine max
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APPLICANT: Alexandrov, Nickolai et al.
                   -11-096-568A-6956
                                NAME/KEY: misc_feature
LOCATION: (1)..(233)
OTHER INFORMATION: Ceres
                                                                                   FEATURE:
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                                Seq.
                                  ID no. 15169319
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     TITLE OF INVENTION: Sequence-Determined DNA Fragments and Corresponding Polypeptides
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20688
LENGTH: 193
                                                                                                                                Sequence 20688, Application US/11096568A Publication No. US20060048240A1 GENERAL INFORMATION:
                                                                                                                      APPLICANT: Alexandrov, Nickolai et al.
TYPE: PRT
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                                                                                                                                                                                                                                              CGTCCCGACATTACTCGCTTGCTAATAGATCGCAGCCCTAAATTACCGGTA 936
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ArgProGluValLeuSerLeuThrValLysAspHisProThrAsnProVal
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SEQ ID NOS: 10444

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Percent Similarity:
Best Local Similarity:
Query Match:
DB:
Sequence 5457, Application US/11079463
; Sequence 5457, Application VS/20060073161A1
; Publication No. US20060073161A1
; GENERAL INFORMATION:
GENERAL INFORMATION:
GENERAL INFORMATION:
HOTELON AMINO ACID SEQUENCES RELATING TO B
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO B
TITLE OF INVENTION: NUCLEIC ACID AND THERAPEUTICS
TITLE OF INVENTION: NUCLEIC ACID AND THERAPEUTICS
FILLE REFERENCE: PATHOO-03DIV2
; FILLE REFERENCE: PATHOO-03DIV2
; FILLE REFERENCE: PATHOO-03DIV2
; CURRENT APPLICATION NUMBER: US/11/079,463
; CURRENT FILING DATE: 2005-03-14
; PRIOR APPLICATION NUMBER: US 60/128,705
; PRIOR APPLICATION NUMBER: US 09/540,209
; PRIOR APPLICATION NUMBER: US 09/540,209
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US-11-079-463-5457
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NAME/KEY: misc_feature
LOCATION: (1)..(193)
OTHER INFORMATION: Ceres S
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TyrProProProProGluTyrThrPheCysGlyLeuGluGluGluProSerProGluSer 110
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; TYPE: PRT
; ORGANISM: B.fragilis
US-11-079-463-5457
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Pred. No.:
158
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                                                                                                                                                                                                                                                                                               103 ValValPheAspArgAspGlySerIleAlaGlyLysTyrArgLysMetHisIleProAsp 122
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                                                                                                                                                                                                                                                                                                                                         ---ValLeuValThrSerLeuPheGluLysArgAlaProGlyLeuTyrHisAsnThrAla 102
                                                                                                                                                                                                                                                                                                                                                              ATGATCGATATGCTTTGTACAGATGACGAAAAG-------CATGCGTTGCTTCTG 732
                                                                                                                                                                                        ACAAAATACGCTTTGTATGCACAAAATGAAGAGATTCATTGTGCGGCCTTGGCCGAGCTTT 564
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGTCTGATCGCCTTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGAC 174
                                                                                                                             -----TyrProGluAlaAla-----
                                                                                                                                                 AGCCTTTATCCTAATGCGGCGAAAGCCCTGGGGCCTGATGTCAATGTAGCGGCCTCTCGA 624
                                                                                                      ATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGTCGTGTGCGCTCGTTTCACAATCC 684
                                                                                                                                                                                                                                                                                                                                                                                                      -----GATGGCCCTCAAGCTAAGCGCATTTCAGAT-----GCAGCCAAGCGGTTG
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Search completed: April 27, 2006, 01:52:58 Job time : 26.7372 secs

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1014
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CQ149186 EST822104
DR709485 ABIN 11049
CQ139118 EST833789
CQ139118 EST833789
CQ13918 EST831734
CR608249 Blood EST
CQ137063 EST831734
CC6453420 ft536 1 I
DR631867 EST102159
DR631467 EST102159
DR629486 EST101217
DR630527 EST102127
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DR630528 ABIN 11 I
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80.2	81	81	81	81	81	81.6	81.6	81.8	81.8	81.8	81.8	82.2			83.4			84.2	85.4	•	86.4	86.4
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DR525110 WS02719.B	CN130894 RHOH1_44_	CN126484 RHOH1_17_	CN124609 RHOH1_5_G	RHOH1_48	CN133019 OX1_9_D07	AW720658 LjNEST16h	BI418062 LjNEST24b	CB342297 CA32EN000	CD715152 VVB208G06	CD717845 VVB143F06	CO364093 RTK1_13_D	CO163629 FLD1_42_G	BE660909 1155 Gmax	CN136550 OX1_43_H0	BI925888 EST545777	BG123280 EST468926	BG128900 EST474546	DR523243 WS02714.B	CA185867 SCSFST307	AQ329769 nbxb0045P	DR163242 RTFE1 41	CO170076 NDL1_11_C

ALIGNMENTS

BOULCE	FEATURES	TITLE JOURNAL COMMENT	SOURCE ORGANISM REFERENCE AUTHORS	RESULT 1 DR609823 LOCUS DEFINITION ACCESSION VERSION
/ Organism="Gibberella moniliformis" // Organism="Gibberella moniliformis" // Mol_type="mRNA" // Mol_type="mRNA" // Strain="m3125" // Strain="m3125" // Clone="FVGDB83" // Lissue type="mycelia" // Clone="FVGDB83" // Clone lib="FVG" // Clone lib="FVG" // Note="Vector: pBlueScript II SK(+) XR; Site 1: EcoRI; // Site 2: XhoI; anamorph: Fusarium verticillioïdes. Mycelia was Gollected after growth in liquid GYAM medium for 96 hours. Cultures were vacuum filtered and the mycelial mats were frozen in liquid nitrogen, ground to a powder, and then added to TRIzol Reagent (Invitrogen, Carlsbad CA) at approximately 1 g mycelia per 10 ml TRIzol. The cDNA was directionally ligated into the pBlueScript II SK(+) XR	USDA 1815 N. University St, Peoria, IL 61604, USA Tel: 309 681 6230 Fax: 309 681 6689 Email: browndw@ncaur.usda.gov TIGR sequence name: FVGDB83TH Seq primer: AAT TAA CCC TCA CTA AAG GG. Location/Qualifiers	rback, T., Smith, S., Feldblyum, T., Glenn, A.E., I ra, D.F., Town, C.D. and Whitelaw, C.A. sysis of 87,000 expressed sequence tags reveals ced introns in multiple genes of the fumonisin blished (2005) act: Brown, D.W.	Gibberella moniliformis Gibberella moniliformis Gibberella moniliformis Gibberella moniliformis Bukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes; Hypocreomycetidae; Hypocreales; Nectriaceae; Gibberella. 1 (Dages 1 to 769) Brown,D.W., Cheung,F., Proctor,R.H., Butchko,A.E., Zheng,L, Lee,Y.,	DR609823 769 bp mRNA linear EST 11-JUL-2005 EST999951 FvG Gibberella moniliformis cDNA clone FVGDB83, mRNA sequence. DR609823 DR609823.1 GI:70684471

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JOURNAL COMMENT
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AUTHORS
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                                                                                                                                                                                                                               Aspergillus niger
Aspergillus niger
Eukaryota; Fungi, Ascomycota; Pezizomycotina; Eurotiomycetes;
Eurotiales; Trichocomaceae; mitosporic Trichocomaceae; Aspergillus
                                                                                                                                                                                                                                                                                                                                                   DR709497
Asn_11063 Aspergillus niger pBluescript (EcoRI-XhoI)
niger CDNA clone Asn_11063, mRNA sequence.
                                                    7141 Sherbrooke Street
Tel: 514 848 2424 3405
Fax: 514 848 4504
                                                                                                                         Contact: Tsang A Centre for Structural and Functional
                                                                                                                                                        1 (bases 1 to 840)
Tsang,A., Storms,R. and Bulter,G.
Expressed sequence tags from Aspergillus niger
Unpublished (2005)
                                                                                                          Concordia University
                                                                                                                                                                                                                                                                                                            EST.
                                                                                                                                                                                                                                                                                                                         DR709497
DR709497.1 GI:70825788
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                                   tsang@vax2.concordia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               vector (cDNA Synthesis Kit; Stratagene)."
Location/Qualifiers
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Pred. No. 1.1e-28;
                                                                                     West,
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11; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCAGCATGGGCAATGCAATTT 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTGACCTTATTGCTGAAGCAGCTGCGAACGGCGCTCAGTTGGTGACTTTTCCCCGAGTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGATCGCCTTTCCGGAAACT 138
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 CTGGCTGGTGGTGGACACTCACGTATCATAGGGCCTGATGGTGGTGACTTGGTCGCGCCT
                                       GTCATAGGCCAGTCTGGCATTGACCGGATGGCCACATCGACTGGCGCCC---TGATGAGC
                                                                        CTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCATGCGTTGCTT
                                                                                                                                             GTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGTCGTGTGCG
                                                                                                                                                                                 CCGCCTCTGTTCCCTCATAGCGAGGACGGTTCCTTGTTTTCGATGTCCACCGAGGGCACC
                                                                                                                                                                                                                    CCGAGCTTTAGCCTTTATCCTAA-----TGCGGCGAAAGCCCTGGGGCCTGATGTCAAT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCATCTATTTACATACAAAACTCCCTGAAGATTGATTCCCCGCAAATGGCCAGCATCCAG
                                                                                                              AGTTCCATTGCGAGGACCTATGCCATCGAAAGTCAGTCTTTTGTCCTCCATACCACAACA
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/clone="Asn_11063"
/dev_stage="mycelial g:
/lab_host="E. coli"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone lib="Aspergillus niger pBluescript (EcoRI-XhoI)" (note="Vector: pBluescript KS+; Site 1: XhoI; Site 2: EcoRI; Complementary DNA was synthesized with ZAP kit (Stratagene) using poly(A)+RNA isolated from Aspergillus niger cultured under different carbon sources (glucose, maltose, xylose, lactose, sorbitol, xylan, and bran). Synthesis was primed with oligo(dT)/XhoI primer. EcoRI Synthesis was primed with oligo(dT)/XhoI primer. EcoRI adaptors were ligated to the bunt-ended, double-stranded cDNA. The ECORI-XhoI-digested cDNA was ligated with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EcoRI-XhoI-digested pBluescript KS+ (Invitrogen
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Pred. No. 4.1e-24;
0; Mismatches 399;
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JOURNAL COMMENT
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AUTHORS
TITLE
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                          209;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Oryza sativa (japonica cultivar-group)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AQ329770
888 bp DNA linear GSS 0 nbxb0045P09r CUGI Rice BAC Library Oryza sativa (japonica cultivar-group) genomic clone nbxb0045P09r, genomic surve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Clemson University Genomics Institute
Clemson University
100 Jordan Hall, Clemson, SC 29634, U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: rwing@clemson.edu
Seq primer: GGAAACAGCTATGACCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Wing, R.A. and Dean, R.A.
A BAC End Sequencing Framework to Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Class: BAC ends
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished (1998)
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864 656 4293
                          Conservative
                                                                                                                                                       /lab_host="E. coli DH10B"
//lab_host="E. coli DH10B"
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//clone lib="CUGI Rice BAC Library"
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//note="Wector: pBeloBAC11; Site_1: HindIII; Site_2:
//note="Wector: pBeloBAC11; Site_1: HindIII; Site_2:
//note="Wector: pBeloBAC11; Site_1: HindIII; Site_2:
//note="Wector: pBeloBAC11; Site_1: HindIII; Site_2:
//note="Wector: pBeloBAC11; Site_1: HindIII; Site_2:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tissue_type="Leaf"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         clone="nbxb0045P09r"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 db_xref="taxon:39947"
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cultivar="japonica"
                                                  11.1%;
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                          0;
                                                     Score 113; DB 9;
Pred. No. 6.5e-24;
                       Mismatches 163;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (japonica cultivar-group)"
                                                                                DB 9; Length 888;
                          Indels
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AUTHORS
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CO149108
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Food and Feed Safety Research Unit USDA/ARS, Southern Regional Research Center 1100 Robert E. Lee Boulevard, New Orleans, 1 Tel: 504 286 4405 Fax: 504 286 4419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yu,J., Whitelaw,C.A., Nierman,W.C., Bhatnagar,D. and Cleveland,T.E. Aspergillus flavus expressed sequence tags for identification of genes with putative roles in aflatoxin contamination of crops FEMS Microbiol Lett. (2004) In press
Contact: Yu J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomy
Eurotiales; Trichocomaceae; mitosporic Trichocomaceae;
1 (bases 1 to 551)
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Aspergillus flavus
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CO149108
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EST824161 Aspergillus flavus Normalized cDNA Expression Library
Aspergillus flavus cDNA clone NAGDP49 5' end, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                    BACKWARD: M13R
Seq primer: M1
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EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Email: jiuyu@srrc.ars.usda.gov
Contact Dr. Yu at USDA/ARS SRRC (jiuyu@srrc.ars.usda.gov) for clone
                                                                                                                                                                                                                                                                                                                                                                             POLYA=No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          FORWARD: M13F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PCR PRimers
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                                                                                                                                                                                                                                                                                                                                                                                                 primer: M13 Forward
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/lab_host="E. coli DH10B T1 resistant cells"
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Library"
                                                                                                                                                                            'clone="NAGDP49"
                                                                                                                                                                                                                                                      /organism="Aspergillus
/mol_type="mRNA"
                                                                                                                                                                                                                           strain="NRRL 3357"
                                                                                                                                     sex="asexual mycelia"
                                                                                                                                                                                                   _xref="taxon:5059"
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Normalized cDNA Expression

LA 70124,

Eurotiomycetes;

13

482 133 422

73

Aspergillus

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REFERENCE
AUTHORS
TITLE
                                                                                                 JOURNAL COMMENT
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VERSION
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CO149186
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                                                                                                                 Yu,J., Whitelaw,C.A., Nierman,W.C., Bhatnagar,D. and Aspergillus flavus expressed sequence tags for identigenes with putative roles in aflatoxin contamination FEMS Microbiol. Lett. (2004) In press
                                                                                                                                                                                                                                                                                                                                                                    Aspergillus flavus cDNA
CO149186
CO149186.1 GI:48903187
                                                                                                                                                                                                                                                                                                                                                                                                                CO149186 S3 bp mRNA linear EST 17-JUN-2004 EST824239 Aspergillus flavus Normalized cDNA Expression Library Aspergillus flavus cDNA clone NAGDQ49 5' end, mRNA sequence.
                                                                                                                                                                                                                     Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes;
Eurotiales; Trichocomaceae; mitosporic Trichocomaceae; Asperg
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Aspergillus flavus
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/ARS, Southern Regional Research Center
Robert E. Lee Boulevard, New Orleans,
504 286 4405
                                                                       and Feed Safety Research Unit
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Email: jiuyu@srrc.a
Contact Dr. Yu at U
information
PCR PRimers
FORWARD: M13F
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Seq primer: M13
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/lab_host="E. coli DH10B T1 resistant cells"
/clone_lib="Aspergillus flavus Normalized cDNA Expres
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/cell_type="mycelia"
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/strain="NRRL 3357"
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/clone="NAGDQ49"
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at USDA/ARS SRRC (jiuyu@srrc.ars.usda.gov)
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Pred. No. 1.3e-21;
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1100 Robert E. Lee Boulevard, New Orleans, LA 70124,
Tel: 504 286 4405
Fax: 504 286 4419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yu.J., Whitelaw.C.A., Nierman,W.C., Bhatnagar,D. and Cleveland,T.E. Aspergillus flavus expressed sequence tags for identification of genes with putative roles in aflatoxin contamination of crops FEMS Microbiol. Lett. (2004) In press
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BACKWARD: M13R
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Contact Dr. Yu at USDA/ARS SRRC (jiuyu@srrc.ars.usda.gov)
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1 (bases 1 to 610)
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                                       AATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCTCAAGCTAAGCGCA 253
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/db_xref="taxon:5059"
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/dev_stage="developmental stages from 18 to 96 hours"
/dav_stage="developmental stages from 18 to 96 hours"
/lab_host="E. coll DH1OB T1 resistant cells"
/clone_lib="Aspergillus flavus Normalized cDNA Expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Aspergillus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /sex="asexual mycelia"
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                                                                                                                                                                                                                                                                                                                                                                             Score 105.6; DB 7
Pred. No. 1.3e-21;
                                                                                                                                                                                                                                                                                                                                                          Mismatches 249;
                                                                                                                                                                                                                                                                                                                                                                                                  DB 7;
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19 GTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAGGCGACGGTGGACAAAACC 78

290;

Conservative

0;

9;

Gaps

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REFERENCE
AUTHORS
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SOURCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Aspergillus niger
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes;
Eurotiales; Trichocomaceae; mitosporic Trichocomaceae; Aspergillus.
1 (Dases 1 to 804)
Tsang, A., Storms, R. and Bulter, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    804 bp mRNA linear EST 14-JUL-2005
Asn_11049 Aspergillus niger pBluescript (EcoRI-XhoI) Aspergillus
niger cDNA clone Asn_11049, mRNA sequence.
DR709485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tel: 514 848 2424 3405
Fax: 514 848 4504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Expressed sequence tags from Aspergillus niger cDNA library Unpublished (2005)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Concordia University
7141 Sherbrooke Street West,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Centre for Structural and Functional Genomics
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Aspergillus niger
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                        Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATACCCAACCACTTCTACGATATTACGAGTATGCTCAAAA 610
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                                                                                                            /dev stage="mycelial growth"

//dev btage="mycelial growth"

//lab host="E. coli"

//clome lib="Aspergillus niger pBluescript (EcoRI-XhoI)"

//clome lib="Aspergillus niger pBluescript KS+; Site 1: XhoI; Site 2:

//clome lib="Aspergillus niger pBluescript KS+; Site 1: XhoI; Site 2:

//clome lib="Aspergillus niger poly(A) + RNA isolated from Aspergillus niger cultured under different carbon sources (glucose, maltose, xylose, lactose, sorbitol, xylan, and bran).

Synthesis was primed with oligo(dT)/XhoI primer. EcoRI adaptors were ligated to the bunt-ended, double-stranded cDNA. The EcoRI-XhoI-digested cDNA was ligated with EcoRI-XhoI-digested cDNA was ligated with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tsang@vax2.concordia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Aspergillus"
                                                                                                                                                                                                                                                                                                                                                                                                                                 db_xref="taxon:5061"
                                                                                                                                                                                                                                                                                                                                                                                                                                                    strain="N402
                                                                                                                                                                                                                                                                                                                                                                                                   one="Asn_11049"
                      10.4%;
Score 105.6; DB 8;
Pred. No. 1.4e-21;
); Mismatches 259;
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                                                                                                                                                                                                                                                                                                                                                                                                CO139118 14-JUN-2004 EST 17-JUN-2004 EST833789 Aspergillus flavus Normalized cDNA Expression Library Aspergillus flavus cDNA clone NAFDB72 5' end, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                       Aspergillus flavus cDNA
CO139118
CO139118.1 GI:48888096
                                                                                                        Email: jiuyu@srrc.ars.usda.gov
Contact Dr. Yu at USDA/ARS SRRC
information
                                                                                                                                                                           Food and Feed Safety Research Unit
USDA/ARS, Southern Regional Research Center
1100 Robert E. Lee Boulevard, New Orleans,
                                                                                                                                                                                                                                Yu, J., Whitelaw, C.A., Nierman, W.C., Bhatnagar, D. and Cleveland, T.E. Aspergillus flavus expressed sequence tags for identification of genes with putative roles in aflatoxin contamination of crops FEMS Microbiol. Lett. (2004) In press
                                                                                                                                                                                                                                                                                     Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes; Eurotiales; Trichocomaceae; mitosporic Trichocomaceae; Aspergillus.

1 (bases 1 to 546)
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Aspergillus flavus
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                                                                                                                                                 Tel: 504 286 4405
Fax: 504 286 4419
                                                                                                                                                                                                                      Contact: Yu J
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                                                                                PCR PRimers
FORWARD: M13F
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                                                                  BACKWARD: M13R
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATGAGTGAACGGGTCGGTGGC
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                                      Seq primer: M13 Forward
POLYA=No.
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1. .546
/organism="Aspergillus
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                                                                                                                           (jiuyu@srrc.ars.usda.gov)
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252;
                                                                                                                                                                                                                                                                       CN808140 840 bp mRNA linear EST 2 Blood EST0223 Metarhizium anisopliae ARSEF 2575 from inse Metarhizium anisopliae cDNA clone B602 5', mRNA sequence. CN808140
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Metarhizium anisopliae
Metarhizium anisopliae
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Hypocreomycetidae; Hypocreales; Clavicipitaceae; mitosporic
                                                                                                                                                                                                                                      CN808140.1
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/strain="NRRL 3357"
/db_xref="taxon:5059"
/clone="NAFDB72"
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/dev_stage="developmental stages from 18 to 96 hours"
/lab_host="E. coli DH10B Tl resistant cells"
/clone_lib="Aspergillus flavus Normalized cDNA Expression
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Seq pri
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Contact: Wang CS
Department of Entomology
University of Maryland
4112 Plant Sciences Building,
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1 (bases 1 to 840)
Wang, C.S., Hu, G. and St. Leger, R.J.
Gene expression profiling of Metarhizium anisopliae grown under different conditions: mechanisms of fungal opportunism
 CN808249
                                                                                                              TIGGCC 557
                                                                                                                                                TATGAACCCCTTCCTCAAGGCGCTCAACGCCAGCAAACACGAAGAAATCCACGTAGCCGC
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/clone="B602"
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CN808249.1
TATGAACCCCTTCCTCAAGGCGCTCAACGCCAGCAAACACGAAGAAATCCACGTAGCCGC
                                CCTTCAACCGCTAACAAAATACGCTTTGTATGCACAAAATGAAGAGATTCATTGTGCGGC
                                                                                      GCT---AGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGCTGTTGGGAGCA
                                                                                                                               TCGCAAGATCAAGCCCACCCATGTCGAGAAGCTTGTATTTGGCGAGGGAAGCGGTGACTC
                                                                                                                                                                                                                                                                                                                                                             ATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCTCAAGCTAAGCGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACTGTTGACTTGATCCTCGAAGCTGGCGAGAAGGATTGCAAGCTTATTGCCTTTTCCTGA
                                                                                                                                                              GCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAAGGGGATGGTTCATC
                                                                                                                                                                                                CCATACCATGTACATGGCGCAGATCATCATTGATCCCACCGGAACCGTCATCAACCACCG
                                                                                                                                                                                                                             TGGCACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGACACCATTGGGGCCCG
                                                                                                                                                                                                                                                               TCGCGAGGCTGCCAAAGCCGCTAAGATCTACGTCTCGTTGGGATATTCCGAGCTCGACGG
                                                                                                                                                                                                                                                                                                                             CCTCCTCAAGAAGTTTCACCAGAACAGCATGCGGCCCGACTCGGACGAAATGCGACGAAT
                                                                                                                                                                                                                                                                                                                                                                                                                              AACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCAGCATGGGCAATGCA 194
                                                                  TCTTCACGCCGTAGTCGAGACTGAAATTGGCAATCTCGGCCACCTGAACTGCTGGGAAAA
                                                                                                                                                                                                                                                                                              TTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATGAGTGAACGGGTCGG
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551 587 491 527 434 467 374 407 347 254 287

314

227

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Wang, C.S., Hu, G. and St. Leger, R.J.

Gene expression profiling of Metarhizium anisopliae gro
different conditions: mechanisms of fungal opportunism
Unpublished (2004)
Contact: Wang CS
Department of Entomology
University of Maryland
4112 Plant Sciences Building, College Park, MD 20742, U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Blood EST0332 Metarhizium anisopliae ARSEF 2575 from insect blood Metarhizium anisopliae cDNA clone B711 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes; Hypocreomycetidae; Hypocreales; Clavicipitaceae; mitosporic Clavicipitaceae; Metarhizium.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: cwang4@umd.edu
Seq primer: M13 Reverse.
AACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGATCGCCTTTCCGGA 134
                                                                                                              CAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTTGGAGGCGACGGTTGGACAA 74
                                                          CAAGGCTGCTTGTGCAAGCTGAGCCTGGATGGCTCAACCTTGAGAAAGCAGTCAAGAA
                                                                                                                                                                                                                                                                                                      /note="Vector: pCMV.SPORT6.1; Metarhizium anisopliae wan
grown in insect haemolymph for 24 hours. A cDNA library
was constructed in the vector pCMV.SPORT6.1"
                                                                                                                                                                                                                                                                                                                                                                                                               /clone_lib="Metarhizium anisopliae ARSEF 2575 from insect
                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db xref="taxon:5530"
/clone="B711"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /mol_type="mRNA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    organism="Metarhizium/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ocation/Qualifiers
                                                                                                                                                                                             9.2%;
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                                                                                                                                                                                          Score 93.2; DB 7;
Pred. No. 1.3e-17;
                                                                                                                                                                   Mismatches 273;
                                                                                                                                                                                                                          Length 998;
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EST831734 Aspergillus flavus Normalized cDNA Expression Library
Aspergillus flavus cDNA clone NAFCD28 5' end, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Yu J
Food and Feed Safety Research Unit
USDA/ARS, Southern Regional Researc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Yu,J., Whitelaw,C.A., Nierman,W.C., Bhatnagar,D. and Cleveland,T.E. Aspergillus flavus expressed sequence tags for identification of genes with putative roles in aflatoxin contamination of crops FEMS Microbiol. Lett. (2004) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seq primer: M13 POLYA=No.
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BACKWARD: M13R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Email: jiuyu@srrc.ars.usda.gov
Contact Dr. Yu at USDA/ARS SRRC (jiuyu@srrc.ars.usda.gov)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eurotiales; Trichocomaceae; mitosporic 1 (bases 1 to 515)
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                                                                                                                                                            TCAAGGTCGCCTGCGAAGCCGCCCCGATCTACATGGATTTGGAGGCGACGGTGGACA
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AAACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCAGCATGGGCAATGC 193
                                    AGGTCATCTCACTGATCAAGGACGCTGCCAAAAACGGCGCCAAGGTGGTCGGTTTCCCCG
                                                                          AAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGATCGCCTTTCCGG 133
                                                                                                                     TCAAGGTTGCTGCGGTTCAAGCTGAGCCTGTCTGGAATGACCTACAAGGCGGGGTTTCCA
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504 286 4419
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                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                            /note="vector: pBlueScript (SK+) (Stratagene), antibiotic selection marker: Carbenicillin; Site 1: Not1, at the 5 prime end; This normalized cDNA expression library was constructed using a mixture of mycelial cells grown under eight different medium conditions and harvested at 5 time points (18, 24, 48, 72, 96 hours). The poly-A sequence was trimmed off before ligating to vector."
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /dev_stage="developmental stages from 18 to 96 hours"
/lab_host="E. coli DH10B T1 resistant cells"
/clone_lib="Aspergillus flavus Normalized cDNA Expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /sex="asexual mycelia"
/cell_type="mycelia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        organism="Aspergillus
/mol_type="mRNA"
/strain="NRRL 3357"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        clone="NAFCD28"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       xref="taxon:5059"
                                                                                                                                                                                                                   8.7%;
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                                                                                                                                                                                                Score 88.4; DB 7;
Pred. No. 3.6e-16;
0; Mismatches 201
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CAAGGCCGCTGCTGTCACCTCCGAGCCTGGATGGTTCGATCTTGAGGGCGGTGTTCGCAA

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    15
                                              268;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gibberella moniliformis
Gibberella moniliformis
Gibberella moniliformis
Eukaryota; Pungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Eukaryota; Pungi; Ascomycota; Nectriaceae; Gibberella.

1 (bases 1 to 655)
Pixttila,A.M., McIntyre,I.M., Payne,G.A. and Woloshuk,C.P.
Comparison of gene expression in the wild type and the fccl mut
of Fusarium verticillicides reveals expressed sequence tags
associated with funonisin biosynthesis
unpublished (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        915W. State Street, West Lafayette IN 47907-2054, USA
Tel: 765 494 3450
Fax: 765 494 0363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CF453420 655 bp mRNA linear EST 01-J ft536_1_I24 Fusarium verticillioides fcc1 mutant subtraction library Gibberella moniliformis cDNA, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Contact: Woloshuk CP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Department of Botany and Plant Pathology
                                                                Similarity
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    CAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAGGCGACGGTGGACAA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                      primer: T7
                                                                                                                                            /note="Vector: PGem-T-Easy; Site_1: EcoRI; Site_2: EcoRI; Fungus was grown on cracked corn. RNA was isolated using phenol LiCl method, PolyA RNA was obtained with Oligotex mRNA spin columns (Qiagen). Subtracted from wild type RNA with PCR select cDNA subtraction kit (Clontech), amplified, cloned into pGEM-TEZ and transformed to E. coli DH5 alpha cells."
                                                                                                                                                                                                                                                                                              /db_xref="taxon:117187"
/clone_lib="Fusarium verticillioides fcc1 mutant subtraction library"
                                                                                                                                                                                                                                                                                                                                                                 /mol_type="mRNA"
/strain="FT536"
                                                                                                                                                                                                                                                                                                                                                                                                       organism="Gibberella moniliformis"
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                                                              48.6%;
                                            Score 87; DB Pred. No. 1.1e 0; Mismatches
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1.1e-15;
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                                                                                                                                                                                                                              l (bases 1 to 699)
Brown, D.W., Cheung, F., Proctor, R.H., Butchko, A.E., Zheng, L, Lee, 1 Utterback, T., Smith, S., Feldblyum, T., Glenn, A.E., Plattner, R.D., Kendra, D.F., Town, C.D. and Whitelaw, C.A.
Analysis of 87,000 expressed sequence tags reveals alternatively spliced introns in multiple genes of the fumonisin gene cluster Unpublished (2005)
                                                                                                                                                                                                                                                                                                                      Gibberella moniliformis
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Hypocreomycetidae; Hypocreales; Nectriaceae; Gibberella.
                                                                                                                                                                                                                                                                                                                                                                                                                                 DR631467 699 bp mRNA linear EST 11 EST1021595 FvI Gibberella moniliformis cDNA clone FVIE956,
                                                                                                            Email: browndw@ncaur.usda.gov
TIGR sequence name: FVIE956TH
Seq primer: AAT TAA CCC TCA C
                                                                                                                                                    Tel: 309 681 6230 Fax: 309 681 6689
                                                                                                                                                                                                       Contact: Brown, D.W. USDA/ARS/NCAUR
                                                                                                                                                                                                                                                                                                                                                                  Gibberella moniliformis
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                                                        /organism="Gibberella
/mol_type="mRNA"
     /db_xref="taxon:117187"
/clone="FVIE956"
/tissue_type="mycelia"
                                                                                              Location/Qualifiers
                                              /strain="m3125"
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DR331867
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EST.
Gibberella moniliformis
Gibberella moniliformis
Eukaryota; Fungi; Ascomyc
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                                                                                              DR631867
EST1021995
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/clone_lib="FvI"
/note="Vector: pBlueScript II SK(+) XR; Site_1: EcoRI;
/note="Vector: pBlueScript II SK(+) XR; Site_1: EcoRI;
Site_2: XhoI; anamorph: Fusarium verticillioIdes. Library
FvI was prepared from growth on excised maize seedling
roots and shoots. The roots and shoots were prepared as
described above and then inculated by dipping briefly in
a suspension of 5 x 10e6 conidia per ml. The inculated
roots and shoots were then incubated on moistened Whatman
#1 filter paper at room temperature under sterile
conditions for 4 days. Fungal mycelial was collected,
frozen in liquid nitrogen, ground to a powder, and then
added to TRIZol Reagent (Invitrogen, Carlsbad CA) at
approximately 1 g mycelia per 10 ml TRIZol. The cDNA was
directionally ligated into the pBlueScript II SK(+) XR
vector (cDNA Synthesis Kit; Stratagene)."
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Length 699,

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Similarity
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ilarity 48.6%;
Conservative
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Pred. No. 1.1e-15;
0; Mismatches 280
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moniliformis
fungi; Ascomycota;

Pezizomycotina; Sordariomycetes;

F۷I

732 bp mRNi Gibberella moniliformis

mRNA

CDNA

linear A clone

FVIEE80,

EST 11-JUL-2005

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JOURNAL COMMENT
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Brown, D. W., Cheung, F., Proctor, R.H., Butchko, A.E., Zheng, L., Lee, Vutterback, T., Smith, S., Feldblyvum, T., Glenn, A.E., Plattner, R.D., Kendra, D.F., Town, C.D. and Whitelaw, C.A. Analysis of 87,000 expressed sequence tags reveals alternatively spliced introns in multiple genes of the fumonisin gene cluster Unpublished (2005)
  428
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Email: browndw@ncaur.usda.
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                                                                                                                                                                                                                                                                                                                         ATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCTCAAGCTAAGCGCAT
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                                                                                                                                                                                                                                                                                                                                                                       AACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCAGCATGGGCAATGCA 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACCATCGACTTCATCAACGAGGCCGGCCAAGCTGGCTGCAAACTCGTCGCCTTTCCCGA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAAGGCCGCTGCTGACCTCCGAGCCTGGATGGTTCGATCTTGAGGGCGGTGTTCGCAA 127
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rcica A GATCA A GCCA A CTCA CGTTGA GAAGCTTGTATA CGGCGATGGCTCCGGGGATA C
                                                                                            CGCAACTCTTTACCTCGCCCAAGTCCTCATCGGCCCCGATGGCTCGGTCATCAACCACCG
                                                                                                                         TGGCACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGACACCATTGGGGCCCG 374
                                                                                                                                                                                     TCGTCGCGCAGCCCGCGATAACCAGATCTACGTCTCCCTCGGCTTCTCTGAGATTGACCA 367
                                                                                                                                                                                                                            TTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATGAGTGAACGGGTCGG 314
                                           GCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAAGG---GGATGGTTC 431
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R sequence name: FVIEE80TH
primer: AAT TAA CCC TCA CTA AAG
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309 681 6689
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/note="Vector: pBlueScript II SK(+) XR; Site_1: CoRI;
/note="Vector: pBlueScript II SK(+) XR
/note= and shoots. The roots and shoots were prepared as described above and then inoculated by dipping briefly in a suspension of 5 x 10e6 conidia per ml. The inoculated roots and shoots were then incubated on moistened Whatman #1 filter paper at room temperature under sterile conditions for 4 days. Fungal mycelial was collected, frozen in liquid nitrogen, ground to a powder, and then added to TRIzol Reagent (Invirrogen, Carlabad CA) at approximately 1 g mycelia per 10 ml TRIzol. The cDNA was directionally ligated into the pBlueScript II SK(+) XR vector (cDNA Synthesis Kit; Stratagene)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Gibberella moniliformis"
/mol type="mRNA"
/strain="m3125"
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/clone_lib="FvI"
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/clone="FVIEE80"
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Pred. No. 1.1e-15;
0; Mismatches 280;
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VERSION
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1 (bases 1 to 810)
1 (bases 1 to 810)
1 (brown, D.W., Cheung, F., Proctor, R.H., Butchko, A.E., Zheng, L, Lee, Y Utterback, T., Smith, S., Feldblyum, T., Glenn, A.E., Plattner, R.D., Kendra, D.F., Town, C.D. and Whitelaw, C.A.
Kendra, D.F., Town, C.D. and Whitelaw, C.A.
Analysis of 87,000 expressed sequence tags reveals alternatively spliced introns in multiple genes of the fumonisin gene cluster Unpublished (2005)
Contact: Brown, D.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gibberella moniliformis
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Eukaryota; Fungi; Ascomycota; Pezizomycotina; Sordariomycetes;
Typocreomycetidae; Hypocreales; Nectriaceae; Gibberella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DR629486 810 bp mRNA linear EST 11-JUL-1
EST1019614 FvI Gibberella moniliformis cDNA clone FvIDC93, mRNA
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                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: browndw@ncaur.usda.gov
TIGR sequence name: FVIDC93TH
Seq primer: AAT TAA CCC TCA CTA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tel: 309 681 6230
Fax: 309 681 6689
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/clone="FVIDC93"
                                                                                                                                                                                                                                                                                                                                                                                         /mol_type="mRNA"
                                                                                                                                                                                                                                                                                                         tissue type="mycelia"
clone_lib="FvI"
                                                                                                                                                                                                                                                                                                                                                                           strain="m3125"
                                                                                                                                                                                                                                                                                                                                                                                                         organism="Gibberella"
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               8.6%;
48.6%;
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Score 87; DB E
Pred. No. 1.2e-
0; Mismatches
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                  DB 8;
1.2e-15;
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Query Match Best Local Similarity Matches 268;

Conservative

0;

280;

Gaps

15 CAAGGTCGCCTGCATGCAAGCCGCCCCGATCTACATGGATTTGGAGGCGACGACGACAA 74

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607 Treeccercr 617
                                            552 TTGGCCGAGCT 562
                                                                                                                                                                                                                                                                                                                                                                                                                                                       315 TGGCACCCTTTACATCAGTCAGTGAGTGCATAGGCGATAATGGTGACACCATTGGGGGCCCG
                                                                                                   547 CATGAACCCCTTCCTCAAGTCTCTCAACGTTTCTGCTGGTGAGCAGGTTCACATCGCTGC
                                                                                                                                 492 CCTTCAACCGCTAACAAAATACGCTTTGTATGCACAAAATGAAGAGAGATTCATTGTGCGGC 551
                                                                                                                                                                                                       487 CTTCATGGCCGTTAGCGAGACTGACATCGGCCGTGTTGGCCCAGCTTAACTGCTGGGAGAA
                                                                                                                                                                                                                                                        432 ATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGCTGTTGGGAGCA 491
                                                                                                                                                                                                                                                                                                                427 TCGCAAGATCAAGCCAACTCACGTTGAGAAGCTTGTATACGGCGATGGCTCCGGGGATAC
                                                                                                                                                                                                                                                                                                                                                 375 GCGAAAGTIGAAACCTACTITTGTIGAACGTACTITGTTCGGCGAAGGGGATGG---TTC
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ALIGNMENTS

gene CDS	FEATURES SOURCE	TITLE JOURNAL REFERCES AUTHORS TITLE JOURNAL	SOURCE ORGANISM REFERENCE AUTHORS	RESULT 1 AY487562 LOCUS DEFINITION ACCESSION VERSION KEYWORDS
/environmental_sample 11014 /locus tag="BD5220" 11014 /locus tag="BD5220" /EC_number="3.5.5.7" /codon_start=1 /evidence=experimental /product="nitrilase"	Directors Place, San Diego, CA 92121, USA Location/Qualifiers 1. 1014 /organism="uncultured organism" /mol_type="genomic_DNA" /db_xref="taxon:155900" /clone="3A6"	Exploring nitrilase sequence space for enantioselective catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004) 2 (bases 1 to 1014) 2 (bases 1 to 1014) Robertson, D.E., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Direct Submission Submitted (26-NOV-2003) Bioinformatics Diversa Corporation 4055	uncultured organism uncultured organism uncultured organism unclassified; environmental samples. 1 (bases 1 to 1014) 1 (bases 1 to 1014) Robertson,D.E., Chaplin,J.A., DeSantis,G., Podar,M., Madden,M., Miller,M., Weiner,D.P., Wong,K., McQuaid,J., Farwell,B., Preston,L.A., Tan,X., Snead,M.A., McQuaid,J., Farwell,B., Farston,L.A., Tan,X., Snead,M.A., Keller,M., Mathur,E., Kretz,P.L., Burk,M.J. and Short,J.M.	AY487562 1014 bp DNA linear ENV 05-APR-2004 Uncultured organism clone 2A6 nitrilase (BD5220) gene, complete cds. AY487562 AY487562.1 GI:40890328

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                  2 (bases 1 to 1014)
Robertson, D.B., Chaplin, J.A., Desantis, G., Pod Chi, E., Richardson, T.H., Milan, A., Miller, M., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Kretz, P.L., Burk, M.J. and Short, J.M.
Direct Submission
                                                                                                                                  1 (bases 1 to 1014)

Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Robertson, D.E., Chaplin, J.A., Miller, M., Weiner, D.P., Wong, K., Chi, E., Richardson, T., Milan, A., Miller, M., Snead, M.A., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., McQuaid, J., Farwell, B., Kretz, P.L., Burk, M.J. and Short, J.M. Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
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                                      ACTTCGCCGCCTGGCCTAGCTTCAGCATCTACCGTCAAGCGACAGAAGTCCTTGGACCAG
                                                               ATTGTGCGGCTTGGCCGAGCTTTAGCCTTTATCCTAATGCGGCGAAAAGCCCTGGGGCCTG
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/product="nitrilase"
/protein_id="AAR97392.1"
/protein_id="AAR97392.1"
/db_xref="GI:4089095"
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ETWIPGYPWFLWLDSPAWGMGPVRRYHENSLVLDSPQAKRISEAAQRAGIYVALGYSE
RVSGTLYADQNGETHFAAWSEFSIYRQATEVLGPEUNVAASRIYAVEGQCFV
LASCALVSPEMIEMLCTDESKHSLLQAGGGYSRIIGPDGSDLARPLGENEEGILYATL
DPAARIYAKTAADPAGHYSRPDVTRLLINRSANQPVVEVGREIPASAQGFEVEAAPGY
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/mol_type="genomic DNA"
/db_xref="taxon:155900"
/clone="2A8"
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Robertson, D.E., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M.
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/clone="2A7"
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                                                                                                                                                /locus_tag="BD5275"
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49.1%;

Score 497.8; DB 3; Pred. No. 1.1e-136; Mismatches 322;

Length

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TGAAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTTGGAGG TCGCCTTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCAG ccacagradacaacaaccercaccerdarraaggaggcagccegraacggcgcacgccraa CGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGA TGAAAGAAGCAATCAAAGTAGCCTGTGTGCAAGCAGCTCCAGTCTTTCTCGACCTGGACG GCGAACGCGTGAGCGGAACCCTCTACATGGGGCAGTGGCTCATTGACGATAAGGGCCGAAA GTGAACGGGTCGGTGGCACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGACA AGGCCAAGCGCATCAGTGAGGCCGCCAGCGCGCGCTATATACGTCGCGCTAGGGTACA GGGATGGTTCATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGCT CCATTGGGGCCCGGCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAAG AAGCTAAGCGCATTTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATGA redectrirecadadaceredatriceadectacecaredirectrirectredacteaceae AAGTAAATGTCGCAGCTTCTCGGATCTACGCCGTGGAAGGGCAGTGTTTTGTTCTCGCTT ACTITCGCCGCCTGGCCTAGCTTCAGCATCTACCGTCAAGCGACAGAAGTCCTTGGACCAG GTTGGGAACACTTACAACCTCTTTCGAAATATGCGCTCTACGCACAGAACGAGGAAATAC GTTGGGAGCACCTTCAACCGCTAACAAAATACGCTTTGTATGCACAAAATGAAGAGATTC ĠĊĠĂĊĠĠĂŤĊĂŤĊĊĊŤŦŦĊĊĄĊŤŤŤĊĠĂĊĂĊĄĊĊĠŦŤĠĠĠĠĠŦĠĊŤĠĠĠĊĠĠĄĊŤĊŦĠĊŢ GCATCCTTGCTAAAATGGCGGCAGACCCTGCTGGTCATTATTCCCGTCCCGACATTACTC CGCGCCCTTGGGCGAAAAACGAGGAAGGTATTCTCTATGCCACTCTGGACCCTGCCGCTC GCCTTCTTCAGGCCGGCGGCGGCTACTCCCGCATTATCGGTCCCGATGGCAGCGACCTAG CGTTGCTTCTGGCTGGTGGTGGACACTCACGTATCATAGGGCCTGATGGTGACTTGG CGTGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCATG ATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGT ATTGTGCGGCTTGGCCGAGCTTTAGCCTTTATCCTAATGCGGCGAAAAGCCCTGGGGCCTG GCTTGCTAATAGATCGCAGCCCTAAATTACCGGTAGTTGAAATTGAAGGTGATCTTCGTC TCGCGCCTCTTGCCGAAAATGAAGAGGGTATTCTCTACGCAAACCTTGATCCTGGAGTAC 121 121 541 481 481 421 421 361 361 301 301 241 181 181 13 721 601 541 841 721 661 661 601 961 901 901 781 781

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Comparison of the complete genome sequences of Pseudomonas pv. syringae B728a and pv. tomato DC3000
Proc. Natl. Acad. Sci. U.S.A. 102 (31), 11064-11069 (2005)
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Submitted (04-MAY-2005) Oregon State
3 (bases 1 to 6093698)
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CP000075 AABP0200000 AABP02000001-AABP02000026
CP000075.1 GI:63253978
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Pseudomonas syringae pv. syringae B728a
Bacteria; Proteobacteria; Gammaproteobacteria;
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                             ATGAAAGAGCCTTTGAAAAGTCGCCTGTGTGCAGGCTGCCCCGTGTTCCTGGATCTGGAC 9184
                                                               ATGAAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAG
                                                                                                            Conservative
                                                                                                                                                                                                                                         VVDNSIDEALAGHCDDISIIIHPDESITVRDNGRGIFVDVHKEEGVSAAEVIMTVLHA
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                                                                                                                                   42.1%;
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                                                                                                            Score 427.4;
Pred. No. 1.3e
0; Mismatches
                                                                                                            1.3e-115;
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Robertson, D.B., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur Kretz, P.L., Burk, M.J. and Short, J.M.

Direct Submission

Submitted (26-NOV-2003) Bioinformatics, Diversa Corporation, 49: Directors Place, San Diego, CA 92121, USA
Location/Qualifiers
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                                                                 TGTTGGGAGCACCTTCAACCGCTAACAAAATACGCTTTGTATGCACAAAATGAAGAGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCATGGGCAATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCT
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                               TGCTGGGAGCACCTGCAGCCGCTGTCCCGCTATGCAATGTATTCCCAGCATGAGGAGATC
                                                                                                                                                                                                        GGGGATGGTTCATCGCTAGCGGTTTTCGAGACGTCTGTTGGAAAGGCTGGGTGGCTTATGC
                                                                                                                                                                                                                                                                 ACCATTGGCATCCGGCGCAAGCTCAAGGCCACGCACGTGGAGCGTACGCTGTTCGGCGAA
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ETWIFGYFWFLWLNSPAINMFLYYQYHQNSLVLDSTQAKRIADARQKNITVALGFSE
RDHGSLYIAQWLIGSDGETIGIRKLKATHVERFLTFGESDGSSLTTWFFPLGNVGALC
RDHGSLYIAQWLIGSDGETIGIRKLKATHVERFTLFGESDGSSLTTWFFPLGNVGALC
RCHLQPLSRYAMYSQHEEIHIAAWPSFSLYTSATAALGPDVNTAASRLYAAEGQCFV
IAPCAVVSDEWIDLLCPDDDRALLSAGGGHARIYGPDGRELYFLGRMEEGLLIAEL
TAPCAVVSDEWIDLLCPDDDRALLSAGGGHARIYGPDGRELYTYAGAGGELLIAEL
TAPCAVVSDEWIDLLCPDDRALLSAGGGHARIYGPDGRELYTYAGAGGHAEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="nitrilase"
/protein_id="AAR97459.1"
/db_xref="GI:40890229"
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/mol_type="genomic DNA"
/db_xref="taxon:155900"
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Pred. No. 2.1e-107;
0; Mismatches 339;
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2 (bases 1 to 1002)

Robertson,D.E., Chaplin,J.A., Desantis,G., Podar,M., Madden,M.,

Chi,E., Richardson,T.H., Milan,A., Miller,M., Weiner,D.P., Wong,K.,

Chi,E., Richardson,T.H., Milan,A., Miller,M., Weiner,D.P., Wong,K.,

Chi,E., Richardson,T.H., Milan,A., Tan,X., Keller,M., Mathur,B.,

McQuaid,J., Farwell,B., Preston,L.A., Tan,X., Keller,M., Mathur,B.,

Kretz,P.L., Burk,M.J. and Short,J.M.

Direct Submission
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                                                                              /evidence=experimental
/product="nitrilase"
                                                                                                                                                                                                                                                                                                                                                                                  /organism="uncultured organism"
/mol_type="genomic DNA"
/db_xref="taxon:155900"
translation="MMKTTVTVACVQAAPVFMDLEGTIDKTITLISEAAQKGAELIAF/
                            /protein_id="AAR97439.1"
/db_xref="GI:40890189"
                                                                                                                                             EC_number="3.5.5.7"
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                                                                 ATCACCTTTGCCAAACTGGCGGCAGATCCCGTAGGCCACTATTCCCCGCCCTGACGTGA
                                                                                                            CGCATCCTTGCTAAAATGGCGGCAGACCCTGCTGGTCATTATTCCCCGTCCCGACATTACT
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CCWEHLQPLSRYAMYSQHEEIHIAAWESFSLYTSATAALGEDVNTAASRLYAAEGQCF
VLAPCAVVSDEMIDLLCPDDDRRALLSAGGEBARIYGPDGRELVTPLGENEEGILLISE
LDSAAITFAKLAADPVGHYSRPDVTRLLFNPSANKTVIKRHSPPELIAEQAPEEEEE"
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Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitted (26-NOV-2003) Bioinformatics, D. Submitt
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Robertson, D.E., Chaplin, J.A.,
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                                                                                                                                         TTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCAGCATGGGCAATGCAATT
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/protein_id="AAR97374.1"
/db_xref="GI:40890059"
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/EC_number="3.5.5.7"
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/mol_type="genomic DNA"
/db_xref="taxon:155900"
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unclassit, ...,

1 (bases 1 to 1011)

1 (bases 1 to 1011)

Robertson,D.E., Chaplin,J.A., DeSantis,G., Podar,M., Madden,M.,

Chi,E., Richardson,T., Milan,A., Miller,M., Weiner,D.P., Wong,K.,

McQuaid,J., Farwell,B., Preston,L.A., Tan,X., Snead,M.A.,

Keller,M., Mathur,E., Kretz,P.L., Burk,M.J. and Short,J.M.

Exploring nitrilase sequence space for enantioselective catalysis

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Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)

2 (bases 1 to 1011)

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Robertson,D.E., Chaplin,J.A., Desantis,G., Podar,M., Madden,M.,

Chi,E., Richardson,T.H., Milan,A., Miller,M., Weiner,D.P., Wong,K.,

McConaid.J.. Farwell,B., Preston,L.A., Tan,X., Keller,M., Mathur,E.,
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CGGCTTGGCCGAGCCTTTAGCCTAATGCGGCGAAAGCCCTGGGGGCCTGATGTCA
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LGFAERDGGTLYIAQMLIGPDGQTISRRKLKFTHVERTVFQAERISGAAAEHKIMVS
IGSLCCWEHLQPLSKYAMYAQNEQIHIGAWPSFSLYQPFANALSPEVNIAVSRYYAVE
GQCFFLAPCATVSDAMIETLCDTPEKQGLIRAGGGHAAIFGPDGSLLTPTVADTYEGL
LYAELDLGVISIAKSAADPAGHYSRPDVTRLLLNQTPSKRVQNMVLPLETVTEPEGFV
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/mol_type="genomic DNA"
/db_xref="taxon:155900"
/clone="2A16"
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Chi,E., Richardson,T., Milan,A., Miller,M., Weiner,D.P., Wong,
McQuaid,J., Farwell,B., Freston,L.A., Tan,X., Snead,M.A.,
Keller,M., Mathur,E., Kretz,P.L., Burk,M.J. and Short,J.M.
Exploring nitrilase sequence space for enantioselective cataly
annol Environ. Microbiol. 70 (4), 2429-2436 (2004)
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Robertson, D.B., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M.

Direct Submission

Submitted (26-NOV-2003) Bioinformatics, Diversa Corporation, 4955

Directors Place, San Diego, CA 92121, USA

Location/Qualifiers
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/product="nitrilase"
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AFPETWIPGYPLWIWLGSPAWGMRFVQRYFENSLVRGSKQWNAIADAARRHRMTVVVG
                                                                                                                                                                                                                                                              organism="uncultured organism"
|mol_type="genomic DNA"
|db_xref="taxon:155900"
                                                                                                     codon_start=1/evidence=experimental
                                                                                                                                        locus_tag="BD7266"
EC_number="3.5.5.7"
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CYVLASCLVVTPEILKVLIDTPDKEPLLLAGGGFSMIFGPDGRALAQPLPETEEGLVT
AEIDLGAIALAKAAADPAGHYARPDVTRLLLNPRPAARVEALGPRFEVVQSEQAEPPT
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                                                                                                                                                                                                                                  AAGCGGTGCGGCTAATCGACGAAGCGGCAGCAAACGGCTCCAGTCTGGTGGCATTCCCCG
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/product="nitrilase"
/protein_id="AAR97469.1"
/protein_id="AAR97469.1"
/db_xref="01:40899249"
/translation="MALTHPKLKVAAVQAAPAPLDUDAAVDKAVRLIDEAAANGSSLV
/translation="MALTHPKLKVAAVQAAPAPLDUDAAVDKAVRLIDEAAANGSSLV
/translation="MALTHPKLKVAAVQAAPALDUDAAVDKAVRLIDEAAANGSSLV
/translation="MALTHPKLKVAAVQAAPALDUDAAVCARLIDEAAAVHALLITV
MGLSERAGGSLYIAQWIIGPNOCHTPAQARKKLPTHAERTVFGESDGSHLAVHALLITV
MGLSERAGGSLYIAQWIIGPNOCHTPAQARETUAAPARETVAACATIGAEVNNAASQIYAVE
GSCFVVAAPCAVISQEMIDLMCDTPDKHQLIHVGGGFTVIYGPDGARIGNLABPQGGI
VYADIDLGMIPJAKAAADPAGHYARPDVTRLLENNRPANRVETLVLPVDQVRDIDARV
EAAAPQARPATGNEDPAAKPMAAE"
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|mol_type="genomic DNA"
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X., Keller,M., Mathur,E.,
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Appl. Environ. MICLOWALL.

2 (bases 1 to 1047)

2 (bases 1 to 1047)

Robertson, D.E., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Robertson, D.E., Chaplin, J.A., Miller, M., Weiner, D.P., Wong, K., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong, K., Chi, E., Richardson, T.H., Milan, A., Tan, X., Keller, M., Mathur, E., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M.
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Robertson, D.B., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
                                                                                                                                                                                                                                                                                                            ENV.
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Robertson, D.E., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong, McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, Kretz, P.L., Burk, M.J. and Short, J.M.
Direct Submission
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Robertson, D.E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D.P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snaad, M.A., Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselective catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
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                                                                                              AATAGATCGCAGCCCTAAATTACCGGTAG
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KPEPKAPNVAPFAPVQAAE"
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Robertson, D.E., Chaplin, J.A., Desantis, G., Podar, M., Madden, M., Chi, E., Richardson, T.H., Milan, A., Miller, M., Weiner, D.P., Wong, McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Keller, M., Mathur, Kretz, P.L., Burk, M.J. and Short, J.M.
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Robertson, D. E., Chaplin, J.A., DeSantis, G., Podar, M., Madden, M., Robertson, D. E., Chi, E., Richardson, T., Milan, A., Miller, M., Weiner, D. P., Wong, K., McQuaid, J., Farwell, B., Preston, L.A., Tan, X., Snead, M.A., McQuaid, J., Farwell, B., Kretz, P.L., Burk, M.J. and Short, J.M. Keller, M., Mathur, E., Kretz, P.L., Burk, M.J. and Short, J.M. Exploring nitrilase sequence space for enantioselettive catalysis Appl. Environ. Microbiol. 70 (4), 2429-2436 (2004)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (26-NOV-2003) Bioinformatics, D Directors Place, San Diego, CA 92121, USA
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    GATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATGAGTGAACGGGTCGGTGGC
                                                                                                GTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCTCAAGCTAAGCGCATTTCA
                                                                                                                                                                                                                                           ATCGGCCTGATCGAGCAGGCGGCCAAGCAGGACGTGCGCCTGATCGCATTCCCAGAGACT
                                                                                                                                                                                                                                                                                        ATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGATCGCCTTTCCGGAAACT
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/db xref="G1:40890199"
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/tasslation="Wisepmitkyrgaavoaapvfldldrtvekaiglieoaakodvrli
/tasslation="Wisepmitkyrgaavoaxyrenslvrgskowqaaladaarhghdtvvag
xseraggslymggalrepbgdliaarrktryphaervfvegedeshlavhdtaafgrlig
xseraggslymggalrepbgdliaarrktryphaervfvegedeshlavhdtaafgrlig
xseraggslymggalrepbgdliaarrktryphaervfvegedeshlavhdtaafgrlig
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mol_type="genomic_DNA
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                         AGCCCTAAATTACCGGTAGTTGAAATTGAAG 949
                                                              GCGGCCGATCCGGCGGGCCACTATTCACGGCCCGACGTAACGCGGCTGCTGCATCGA
                                                                                  GCGGCAGACCCTGCTGGTCATTATTCCCGTCCCGACATTACTCGCTTGCTAATAGATCGC 918
                                                                                                                              ACCGAAGAGGGACTGCTGGTCGCCGATATCGACCTCGGCATGATCGCGTTGGCCAAGGCG
                                                                                                                                                    AATGAAGAGGGTATTCTCTACGCAAACCTTGATCCTTGGAGTACGCATCCTTGCTAAAATG
                                                                                                                                                                                                                                                             CCGGAGATGATCAAGGTATTGGTGGATACGCCCGACAAGGAGATGTTCCTCAAGGCCGGC
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                                                                                                                                                                                                                                                                                                                                           TCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGTCGTGTGCGCCTCGTTTCA 678
                                                                                                                                                                                                                                                                                                                                                                                         AGCTTCAGCCTCTATCGCGGCATGGCCTATGCGCTCGGACCGGAGGTCAATACCGCCGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCGCTAACAAAATACGCTTTGTATGCACAAAATGAAGAGATTCATTGTGCGGGCTTGGCCG 558
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGCTGTTGGGAGCACCTTCAA 498
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

19	18	17	16	15	14	13	12	11	10	9	89	7	0	ر ت	4	w	2	 -	Result No.
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Adg93674 Nitrilase	Adh35973 Chemical	Adc23872 DNA seque	Adi64310 DNA encod	Adi62189 DNA encod	Adg93592 Nitrilase	Adh35891 Chemical	Adc23790 DNA seque	Adi64300 DNA encod	Adi62179 DNA encod	Adg93582 Nitrilase	Adh35881 Chemical	Adc23780 DNA seque	Adi64638 DNA encod	Adi62517 DNA encod	Adg93918 Nitrilase	Adh36219 Chemical	Adc24118 DNA seque	Aad11167 Nitrilase	Description

Nitrilase.

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Adc23766 DNA seque	Adp07483 Nitrilase	Adp07481 Nitrilase	Abx94388 Arthrobac	Abx94384 Arthrobac	Adi64470 DNA encod	Adi62349 DNA encod	Adg93752 Nitrilase	Adh36051 Chemical	Ξ	Adi64558 DNA encod	Adi62437 DNA encod	_			Adi64586 DNA encod	Adi62465 DNA encod	Adh36167 Chemical	Adc24066 DNA seque	Adi64544 DNA encod	Adi62423 DNA encod	Adg93826 Nitrilase	Adh36125 Chemical	Adc24024 DNA seque	Adi64392 DNA encod	Adi62271 DNA encod

ALIGNMENTS

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                                                                       Producing alpha-substituted carboxylic acid enantiomers by contacting aldehyde or ketone with cyanide, ammonia compound or its salt or amine and hydrolyzing the resulting amino nitrile or cyanohydrin with
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07-DEC-2000; 2000US-0254414P.
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Best Local Similarity 100.0%;
Matches 1014; Conservative 0
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CGCATCCTTGCTAAAATGGCGGCAGACCCTGCTGGTCATTATTCCCCGTCCCGACATTACT
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30-JUL-2001;
22-JAN-2002;
                                              This invention relates to nitrilases and the nucleic acids that encode these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and alighatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This polynucleotide is a DNA sequence that encodes a nitrilase enzyme of the invention.
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enantiomer; chiral me
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Best Local Similarity
Matches 1013; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a gene which encodes a nitrilase enzyme which can be used in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                        Sequence 1014 BP; 238 A; 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Monitoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted cyanide or a reactant that generates a cyanide or a material that converted to cyanide.
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AGTGAACGGGTCGGTGGCACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGAC
                                                                                                             GCATGGGCAATGCAATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCT
                                                                                                                                                                 ATCGCCTTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCA
                                                                                                                                                                                                                       GCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTG
                                                                  CAAGCTAAGCGCATTTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATG
                                                                                                                                                                                                       GCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTG
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                                                                                              GCATGGGCAATGCAATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCT
                                                                                                                                                  ATCGCCTTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCA
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Stege J;
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                                                                                                                                                                                                 WO2003097810-A2
                                                                                                                                                                                                                                           Unidentified
                                                                                                                                                                                                                                                                                                   nitrilase; nitrile; carboxylic acid; chemical process;
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2002US-00241742.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Atorvastatin; (R)-ethyl 4-cyano-3-hydroxybutyrate; (R)-ethyl 4-cyano-3-hydroxybutyric acid; epichlorohydrin; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric acid; mixed hyperlipidaemia; homozygous familial hypercholesterolaemia; antilipaemic; gene; ds.
          The present invention relates to a method for preparating an atorvastatir intermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid with a polypeptide having nitrilase activity, converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate.
                                                                                                                                                                  Claim
                                                                                                                                                                                              Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglucaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
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28-JUN-2002;
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Atorvastatin is used, in conjunction with dietary restriction, in t management of hyperlipidaemia, including hypercholesterolaemia, mix dyslipidaemia and homozygous familial hypercholesterolaemia. The pr sequence encodes a nitrilase polypeptide obtained from an environme sample. environmental on, in the nia, mixed

Ή, 0 Ç 0 Other;

BB <u>;</u> 12; Indels Length 1014; 0,

GCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTG ATCGCCTTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCA GCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTG ATGAAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGAAG ATGAAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAG 180 120 120 60 0

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CATTGTGCGGCTTGGCCGAGCTTTAGCCTTTATCCTAATGCGGCGAAAGCCCTGGGGCCT

GATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCG CATTGTGCGGCTTGGCCGAGCTTTAGCCTTTATCCTAATGCGGCGAAAGCCCCTGGGGCCT 660

TCGTGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCAT TCGTGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTTGTACAGATGACGAAAAGCAT 'AGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCG 720 720 660

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The invention describes an isolated or recombinant polypeptide (I) CC comprising amino acids having a sequence at least 50 % identical to a CC sequence (S1) available in electronic form (EC) from the following web CC site fig. seqdata.uspto.gov/sequence.html?DocID=2004014195, or its CC variants, having one or more mutations at residue 55 Lys, Gly or Glu, at CC residue 60 glutamic acid, at residue 111 Ser, their combinations or CC fragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3-CC hydroxybutyric acid; hydrolysing a nitrile to a carboxyllc acid; hydrolysing a nitrile moiety; producing a CC chiral alpha-hydroxy acid molecule or a chiral amino acid molecule; CC producing an (S)-ethyl 4-cyano-3-hydroxybutyric acid; producing an (R)-mandelic acid or (S)-mandelic acid; producing (S)-phenyl lactic acid derivative or an (R)-phenyl lactic acid derivative; modifying a molecule; and for identifying a modified compound. The inventive method is useful CC excess. (I) is useful in the production of food additives and drug
                                                                                                                                                                                                                                                                                                                                                                                                    29-DEC-1999;
07-DEC-2000;
28-DEC-2000;
21-JUN-2001;
30-JUL-2001;
22-JAN-2002;
15-MAY-2002;
09-SEP-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (R)-ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis; carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile moiety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S)-ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-mandelic acid; (S)-mandelic acid; (S)-mandelic acid derivative; % enantiomeric excess;
                                                                                                                                                                                                                                                              Novel isolated or recombinant polypeptide useful in production of food additives.
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2001US-0309006P.
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                                                                                                                                                                                                                  Query Match
Best Local
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                                                                                                                                                                                                                                                                                                                              these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This polymucleotide is a DNA sequence that encodes a nitrilase enzyme of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Madden M,
Short JM,
                                                                                                                                                                                                                                                                                        Sequence 1014 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1; SEQ ID NO 47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl acid derivative and for producing pharmaceutical composition, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-JUN-2001; 2001US-0300189P
30-JUL-2001; 2001US-0309006P
22-JAN-2002; 2002US-0351336P
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CCACAGTGGACAAGACCGTCGCCCTGATTGAGGAGGCAGCCCGTAACGGCGCACGCCTAA
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                                         (first
                         monitoring-related nitrilase
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chemical process monitoring; biochemical high throughput system; gene; ds.

process

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gene sequence SeqID47. monitoring;

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           reactant comprising a cyanide or a reactant converted to cyanide.
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P-PSDB; ADH35882.
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                         New isolated or recombinant nucleic acid nitrilase activity, useful for screening
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                                          conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid with a polypeptide having nitrilase activity, converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters. Atorvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia, mixed dyslipidaemia and homozygous familial hypercholesterolaemia. The prese sequence encodes a nitrilase polypeptide obtained from an environmenta
                                                                                                                                                                                                                                                                                                                               Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglutaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
                                                                                                                                                                                                                           The present invention relates to a method for preparating an atorvastatin intermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting
                                                                                                                                                                                                             cyano-3-hydroxybutyric acid). The method comprises optionally conve-
epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic
                                                                                                                                                                                                                                                                                                                                                                                                                   P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13-JUN-2002; 2002US-0389317P.
28-JUN-2002; 2002US-0392944P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (R)-ethyl 4-cyano-3-hydroxybutyric ācid; epichlorohydrin; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric acid; mixed hyperlipidaemia; homozygous familial hypercholesterolaemia;
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                                                                                                                                                                                                                                                                      CGTGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCATG
                                                                                                                                                                                                                                                                                                                                                            ACTTCGCCGCCTGGCCTAGCTTCAGCATCTACCGTCAAGCGACAGAAGTCCTTGGACCAG
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                               GGCTGCTGATCAATCGCAGTGCCAATCAGCCAGTCGTAGAGGTTGGAAGGGAAATACCTG
                                                    GCTTGCTAATAGATCGCAGCCCTAAATTACCGGTAGTTGAAATTGAAAGGTGATCTTCGTC
                                                                                      GAATCTATGCAAAGACCGCAGCTGATCCAGCCGGGCACTACTCCAGACCAGACGTCACTC
                                                                                                             GCATCCTTGCTAAAATGGCGGCAGACCCCTGCTGGTCATTATTCCCCGTCCCGACATTACTC
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CATCGGCCCAAGGCTTTGAAGTTGAGGCGGCCCCCGGGTACGAAGGCGATTGA

1014

Query Match Best Local S Matches 692

Local Similarity nes 692; Conserv

Conservative

49.3%;

Score 499.4; DB 12; pred. No. 1.1e-152; 0; Mismatches 321;

Length 1014;

0

Gaps

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The invention describes an isolated or recombinant polypeptide (I) CC comprising amino acids having a sequence at least 50 % identical to a CC sequence (S1) available in electronic form (EC) from the following web CC site ftp.segdata.uspto.gov/sequence.html?DocID=2004014195, or its CC variants, having one or more mutations at residue 55 Lys, Gly or Glu, at CC residue 60 glutamic acid, at residue 111 Ser, their combinations or CC fragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3-CC hydroxybutyric acid, hydrolysing a nitrile to a carboxylic acid; CC hydrolysing cyanohydrin moiety or an aminonitrile moiety; producing a CC chiral alpha-hydroxy acid molecule or a chiral amino acid molecule; CC groducing an (S)-ethyl 4-cyano-3-hydroxybutyric acid; producing an (R)-ethyl 4-cyano-3-hydroxybutyric acid; producing an (R)-mandelic acid or (S)-mandelic acid; producing (S)-phenyl lactic acid derivative or an (R)-phenyl lactic acid derivative; modifying a molecule; CC derivative or an (R)-phenyl lactic acid derivative; modifying a molecule; CC consistency or determining % enantiomeric excess or % diasteromeric cecess. (I) is useful in the production of food additives and drug intermediates. This sequence encodes a nitrilase of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-DEC-1999; 99US-0173609P.
07-DEC-2000; 2000US-0254414P.
28-DEC-2000; 2000US-00751299.
21-JUN-2001; 2001US-0300189P.
30-JUL-2001; 2001US-030906P.
22-JAN-2002; 2002US-0351336P.
15-MAY-2002; 2002US-00146772.
09-SEP-2002; 2002US-00241742.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (R)-ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis; carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile moiety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S)-ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-mandelic acid; (S)-phenyl lactic acid derivative; R)-phenyl lactic acid derivative; % enantiomeric excess; food additive; drug intermediate; ds; nitrilase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADI64300;
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Best Local
                                                                                                                                                                                                                                                                                  This invention relates to nitrilases and the nucleic acids that encode these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This polynucleotide is a DNA sequence that encodes a nitrilase enzyme of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Madden M,
Short JM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-JUN-2001;
30-JUL-2001;
22-JAN-2002;
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                                                                                                                                                                                                                                                            Sequence 1014 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 1; SEQ ID NO 57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and food additive.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2003-201417/19.
P-PSDB; ADC23791.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene; ds; nitrilase; nitrile; cyanohyrdin; ammonia; biocatalyst;
enantiomer; chiral medicine.
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  CATGGGCAATGCAATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCTC
                                                TCGCCTTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTCTTTTGGCTTGACTCACCAG
                                                                                                       CGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGA
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                                TCGCCTTTCCAGAGACCTGGATTCCAGGCTACCCATGGTTCCTTTGGCTGGACTCACCAG
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Burk M;
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2001US-0309006P.
2002US-0351336P.
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Pred. No. 3.6e-152;
0; Mismatches 322;
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throughput system; gene;
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                                                                                                                                                               (first
                                                                                                                                     monitoring-related nitrilase gene sequence
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This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a gene which encodes a nitrilase enzyme which can be used in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                    Weiner D,
Mcquaid J,
                                                                                                                                                                                                                                                 Monitoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted to cyanide or a reactant that generates a cyanide or a material that can converted to cyanide.
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P-PSDB; ADH35892.
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                                                                                                                                                                                                                   Claim 74; SEQ ID NO 57;
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Matches 691; Query Match Best Local Sequence 1014 BP; 228 A; 305 Similarity Conservative 49.1%; <u>.</u> Score 497.8; Pred. No. 3. C; 285 Mismatches G; 196 7.8; DB 12; 3.6e-152; ches 322; Ή, 0 U; Indels 0 Other Length ٥, Gaps 0

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anus invention is related to a novel isolated or recombinant nucleic a encoding a protein having nitrilase activity. Nitrilase's are capable converting nitrile's directly to carboxylic acids and have great potential for use in industrial chemical processes. The isolated nitrilase proteins of the invention have increased activity and stabil at increased pH and temperature when commarch to these activity and stabil
                                                                                                                                                             New isolated or recombinant nitrilase activity, useful f
                                                                                                                                                                                                                                                                       Desantis
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09-SEP-2002;
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2002US-00241742.
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                                                                                                                                                                                                                                                                           The present invention relates to a method for preparating an atorvastatin intermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate (R)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric acid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysare process, "one pot" processes, and "multi-pot" processes using a variety of parameters. Acorvastatin is used, in conjunction with distary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia. The present sequence encodes a nitrilase polypeptide obtained from an environmental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglutaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
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Search completed: April Job time: 704.165 secs 26, 2006,

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1: /cgn2_6/ptodata/1/ina/1_COMB.seq:*

2: /cgn2_6/ptodata/1/ina/5_COMB.seq:*

3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*

4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*

5: /cgn2_6/ptodata/1/ina/PTUS_COMB.seq:*

6: /cgn2_6/ptodata/1/ina/PTUS_COMB.seq:*

7: /cgn2_6/ptodata/1/ina/PE_COMB.seq:*

8: /cgn2_6/ptodata/1/ina/RE_COMB.seq:*

9: /cgn2_6/ptodata/1/ina/RE_COMB.seq:*
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US-08-690-493-2 Sequence 2, Application US/08690493 Patent No. 5872000 GENERAL INFORMATION: APPLICANT: Yu, Pujio TITLE OF INVENTION: No. 5872000el Nitrilase Gene NUMBER OF SEQUENCES: 5 CORRESPONDENCE ADDRESS: CONPUTER: 1140 Avenue of the Americas CITY: New York COUNTRY: U.S.A. ZIP: 10036 COMPUTER READABLE FORM: MEDIUM TYPE: Ploppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: MS-DOS Editor CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/690,493 FILING DATE: 31 JUL-1996 PRIOR APPLICATION NUMBER: US/08/690,493 FILING DATE: 31 JUL-1995 ATTORNEY/AGENT INFORMATION: NAME: Davidson, Clifford M REGISTRATION NUMBER: 32,728 REFERENCE/DOCKET NUMBER: 3821005 TELEPHONE: (212) 768-3800	C 25 32.8 3.2 1115 3 US-09-949-016-539 C 26 32.8 3.2 2088 3 US-09-023-655-340 27 32.6 3.2 336 3 US-09-643-597-286 28 32.6 3.2 336 3 US-09-440-840-286 32 32.6 3.2 336 3 US-09-606-4218-286 31 32.6 3.2 336 3 US-09-606-4218-286 31 32.6 3.2 336 3 US-09-607-700-286 32 33.6 3.2 336 3 US-09-134-001C-1515 34 32.6 3.2 3561 3 US-09-134-001C-1626 35 32.6 32 561 3 US-09-134-001C-1626 36 32.4 3.2 561 3 US-09-134-001C-1626 36 32.4 3.2 561 3 US-09-902-540-660 7 37 32.4 3.2 561 3 US-09-912-901-540-502 C 38 32.2 505 3 US-09-918-811-1 C 41 31.8 3.1 893 1 US-09-9270-767-2487 31.6 3.1 1930 3 US-09-270-767-2487 44 31.6 3.1 37304 3 US-09-949-016-13442 44 31.6 3.1 37304 3 US-09-949-016-13462 45 31.6 3.1 481115 3 US-09-949-016-11862 ALIGNMENTS
	Sequence 339, App Sequence 286, App Sequence 286, App Sequence 286, App Sequence 286, App Sequence 286, App Sequence 1515, App Sequence 1626, App Sequence 1626, App Sequence 6607, App Sequence 502, App Sequence 5031, Ap Sequence 2925, App Sequence 24487, A Sequence 24487, A Sequence 11862, A Sequence 11862, A Sequence 11862, A

Query Match

27.9%; Score 283;

BB 2

Length 1035;

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RESULT 2
US-08-690-493-3
; Sequence 3, Application US/08690493
; Patent No. 5872000
; GENERAL INFORMATION:
; APPLICANT: Yu, Fujio
; TITLE OF INVENTION: No. 5872000e1
; NUMBER OF SEQUENCES: 5
; CORRESPONDENCE ADDRESS:
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Best Local Similarity
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COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: MS-DOS Editor
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/690,493
FILING DATE: 31 JUL-1996
PRIOR APPLICATION UMBER: JP 213061/1995
PRIOR APPLICATION NUMBER: JP 213061/1995
FILING DATE: 31-JUL-1995
ATTORNEY/AGENT INFORMATION:
NAME: Davidson, Clifford M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: (212) 382-2124 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 1200 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
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ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 32,728
REFERENCE/DOCKET NUMBER: 38
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: 1140 Ave
CITY: New York
STATE: New York
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM: GO
STRAIN: MA-1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CELL TYPE: unicellular organism
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                      540
                                                         434
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                      ATCTGGTCGTGGACCAGACCAGTCTCGGCCGAGTCGGGTCGCTGTGCTGTTGGGAACATC
                                                         CGCTAGCGGTTTTCGAGACGTCTGTTGGAAGGCTGGGTGGCTTATGCTGTTGGGAGCACC
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Pred. No. 1.9e-82;
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; NAME/KEY: CDS
; LOCATION: 1 ... 1071
US-09-806-876A-1
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Best Local :
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                                                                                                                                                                                                                                                                  Matches 497; Conservative
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APPLICANT: Friedrich, Thomas
APPLICANT: Hauer, Bernhard
APPLICANT: Hauer, Bernhard
TITLE OF INVENTION: A process for preparing chiral carboxylic acids
TITLE OF INVENTION: which comprise using a nitrilase or microorganisms
TITLE OF INVENTION: which comprise a gene for the nitrilase
FILE REFERENCE: 49462
CURRENT APPLICATION NUMBER: US/09/806,876A
CURRENT FILING DATE: 2001-05-21
PRIOR APPLICATION NUMBER: Germany/19848129.2
PRIOR FILING DATE: 1998-10-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 9
SOFTWARE: WordPerfect version 6.1
                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 1071
TYPE: DNA
ORGANISM: Alcaligenes
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 TGGGCAATGCAATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCTCAA
                                       GCCTTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCAGCA 183
                                                                                                                 GGTGTTGATAAAACCATTGAGCTGGCTCGTCAGGCCCGCGATGAGGGCTGTGACCTGATC
                                                                                                                                                       ACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGATC
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Pred. No. 3.8e-71;
0; Mismatches 414;
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APPLICANT: Chauhan, Sarita
APPLICANT: DiCosimo, Robert
APPLICANT: DiCosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: Payne, Mark
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
SEQ ID NO 4
TENGTH: 1110
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Patent No. 6870038
GENERAL INFORMATION:
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; TYPE: DNA; ORGANISM: Acidovorax US-09-823-373-4
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APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
SEQ ID NO 13
LENGTH: 1110
TYPE: DNA
ORGANISM: Acidovorax facilis
US-09-823-373-13
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APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of a C
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT ETLING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOPTWARE: Microsoft Office 97
SEQ ID NO 15
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Matches
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                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 1776
TYPE: DNA
ORGANISM: Acidovorax
-09-823-373-15
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                      CTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGACACCATTGGGGGCCCGGCGAAAG
                                                    GCCGCGCGCCGCAACAAATCGCACTCGTCATGGGCTATTCGGAGCGGGAAGCCGGATCG
                                                                                                                                                              ATTCCGGGCTACCCCTATTGGGCGTGGCTCGGCGACGTGAAGTACAGCCTAAGCTTTACT
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Pred. No. 6e-61;
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                                                    US-09-823-373-16
                                                                                                                                 SEQ ID NO 16
LENGTH: 1110
                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                       Patent No. 6870038
                                                                                                                                                                                                                                                                                                                            APPLICANT: Chauhan, APPLICANT: DiCosim
                                                              FEATURE:
OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                       TYPE: DNA
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TTGAAACCTACTTTTGTTGAACGTACTTTGTTCGGCGAAGGGGATGGTTCATCGCTAGCG
                                                         CCTAAATTACCGGTAGTTGAAATTGAAGGTGATCTTCG
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AATCATACGCCAGTTCATCGCATCGGCATTGACGGTCG
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APPLICANT: Payne, Mark
APPLICANT: Gavagan, John
APPLICANT: Gavagan, John
APPLICANT: Gavagan, John
APPLICANT: Gavagan, John
APPLICANT: Gavagan, John
APPLICANT: Gavagan, John
TITLE OF INVENTION: Robert and Expression of
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION UMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
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US-09-823-373-16
; Sequence 16, Application US/09823373
Query Match 21.4%;
Best Local Similarity 51.9%;
Matches 488; Conservative
                                                                                                                                                                                            ORGANISM: Artificial Sequence
                                                                                                                     Description of Artificial Sequence: version of the nitrilase gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Robert
Score 216.8; DB 3;
Pred. No. 1.1e-60;
0; Mismatches 452;
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RESULT 8
US-08-447-702-4
US-08-447-702-3
Sequence 4, Application US/08447702
Patent No. 5629190
GENERAL INFORMATION:
APPLICANT: Petre, Dominique
APPLICANT: Cerbeleaud, Edith
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NAME/KEY:
LOCATION:
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APPLICANT: Levy-Schil, Sophie
APPLICANT: Crouzet, Joel
TITLE OF INVENTION: Polypeptide!
TITLE OF INVENTION: Activity, DI
PATENT NO. 5629190
FITTLE OF INVENTION: Expression (
TITLE OF INVENTION: to be Obtain
TITLE OF INVENTION: lates by Mee
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 40...
459; Conservative
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APPLICATION NUMBER: US 08/194,588
APPLICATION NUMBER: 10-FEB-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: FR 92-09-882
FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
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CITY: Alexandria
STATE: VA
COUNTRY: USA
COUNTRY: USA
ZIP: 22313-1404
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC COMPUTER: PATENTIAL SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, 1
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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CORRESPONDENCE ADDRESS:
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APPLICATION NUMBER: US
FILING DATE: 23-MAY-19
CLASSIFICATION: 530
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REGISTRATION NUMBER: 39,300
REFERENCE/DOCKET NUMBER: 000
TELECOMMUNICATION INFORMATION:
TELEPHONE: 703-836-6620
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                                                                      TTTCAGATGCAGCCAAGCGGTTGGGAATCATGGTCACCCTGGGGATGAGTGAACGGGTCG
                                                                                                                                                                                                                               AATTTGTACGCCAATACCATGAGAACTCATTGGAGTTGGATGGCCCTCAAGCTAAGCGCA
†TAGTGATGCTGCAAAAAAGAATGGAGTTTACGTTTTGCGTTTCTGTATCAGAGAAAGATA
                                                                                                                                                     TGATGTGGGCCGTCCTTTTCAAGAATGCGATTGAAATCCCAAGCAAAGAAGTTCAACAAA
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Polypeptides Possessing A Nitrilase
Activity, DNA Sequence Coding for Said Polypeptides,
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RESULT 9
US-08-465-615-4
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Patent No. 5635391
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                                                                                  STREET: P.U.
STREET: P.U.
STREET: Virginia
STATE: Virginia
STATE: United States
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APPLICANT:
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              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                 TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
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                                                                                                                                                             E: Burns, Doa
P.O. Box 1404
                                                                                                                                                                                                                                                                                                                      CROUZET, Joel
                                                                                                                                                                                                                                                                                                                                         PETRE, Dominique
CERBELEAUD, Edith
LEVY-SCHIL, Sophi
PatentIn Release #1.0,
                                                                                                                                                                                                                              POLYPEPTIDES POSSESSING A NITRILASE
ACTIVITY, DNA SEQUENCE CODING FOR SAID POLYPEPTIDES,
EXPRESSION CASSETTES AND HOST MICROORGANISMS ENABLING
TO BE OBTAINED, AND METHOD OF CONVERTING NITRILES TO
CARBOXYLATES BY MEANS OF SAID POLYPEPTIDE
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US-08-465-615-4
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Best Local Similarity
Matches 459; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 0
FILING DATE: 10-FEB-1994
APPLICATION NUMBER: FR 9
FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 1194 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELECOMMUNICATION INFORMATION: TELEPHONE: (703) 836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Crane-Feury, Sharon E
REGISTRATION NUMBER: 36,113
REFERENCE/DOCKET NUMBER: 003
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: nucleic acid
STRANDEDNESS: single
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                  CTACTAATGCGATGCATCAGATCATTAGTCAGTTTTACGCGATCAGCAATCAGGTATATG
                                                      CGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTC-----
                                                                                                                           GGCCGAGCTTTAGCCTTTATCCTAATGCGGCGAAAGCCCTGGGGGCCTGATGTCAATGTAG
                                                                                                                                                                 TTCAACCGCTAACAAAATACGCTTTGTATGCACAAAATGAAGAGAGATTCATTGTGCGGCTT
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                                                                                         GGCCAGCCTTCGTCCCTAAAGGCGCAGTATCATCCAGAGTATCATCCAGCGTCTGTGCGT
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Pred. No. 7.0
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Sequence 3, Application US/09823373
Patent No. 6870038
GENERAL INFORMATION:
APPLICANT: Chauhan, Sarita
APPLICANT: DiCosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
US-09-823-373-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; LENGTH: 385
; TYPE: DNA
; ORGANISM: Acidovorax facilis
US-09-823-373-3
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APPLICANT: Fallon, Robert
ITILE OF INVENTION: Isolation and Expression of a Gene for Nitrilase from
ITILE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Match 8.3%;
Local Similarity 53.3%;
                                                                                                                                                                                                                                                                                                                                                           173
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                                                    AAATACGCTTTGTATGCACAAAATGAAGAGAT 539
                                                                                                                 GACTTCGCGTTCGGACGCGTCGGTGGATTGAACTGCTGGGAACATTTCCAACCGCTCAGC 352
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGACTTGGTCGCGCCTCTTGCCGAAAATGAAGAGGGTATTCTCTACGCAAACCTTGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTCCAAAAACTTTCTACCGCTTGGTTCTGGAAACACAGCGATTAT---TTCTAACACCG
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                                                                                                                                                                      GAGACGTCTGTTGGAAGGCTGGGTGGCTTATGCTGTTGGGAGCACCTTCAACCGCTAACA 507
                                                                                                                                                                                                                                                                                           CCTACTTTTGTTGAACGTACTTTGTTCGGCGAAGGGGATGGTTCATCGCTAGCGGTTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TÄATTATGTCAACCAATCTCGTTGGCCÁAGACATGACTGACATGACTTGGGÁAAGÁTGÁAT 825
                                                                                                                                                                                                                                   CCCACACACGTTGAGCGTACGATCTACGGCGAAGGCAACCGGAACCGATTTCCTCACGCAC
AAGTTCATGATGTACAGCCTCGGTGAGCAGGT 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
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FILE REFERENCE: CL001307
CURRENT APPLICATION NUMBER: US/09/949,016
CURRENT FILING DATE: 2000-04-14
PRIOR APPLICATION NUMBER: 60/241,755
PRIOR APPLICATION NUMBER: 60/237,768
PRIOR FILING DATE: 2000-10-03
PRIOR APPLICATION NUMBER: 60/231,498
PRIOR APPLICATION NUMBER: 60/231,498
PRIOR FILING DATE: 2000-09-08
NUMBER OF SEQ ID NOS: 207012
SOFTWARE: FASTESEQ for Windows Version 4.0
SEQ ID NO 13698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILE REFERENCE: CL001307

CURRENT APPLICATION NUMBER: US/09/949,016

CURRENT FILING DATE: 2000-04-14

PRIOR APPLICATION NUMBER: 60/241,755

PRIOR FILING DATE: 2000-10-20

PRIOR FILING DATE: 2000-10-23

PRIOR FILING DATE: 2000-037,768

PRIOR FILING DATE: 2000-039

PRIOR APPLICATION NUMBER: 60/231,498

PRIOR APPLICATION NUMBER: 60/231,498

PRIOR FILING DATE: 2000-09-08

NUMBER OF SEQ ID NOS: 207012

SOFTWARE: FASESEQ for Windows Version 4.0

SEQ ID NO 66400

LENGTH: 601
                                                                              ; FEATURE:
NAME/KEY: misc feature
LOCATION: (1)...(110243)
CTHER INFORMATION: n = A
US-09-949-016-13698
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US-09-949-016-66400
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 13698, Application US/09949016 Patent No. 6812339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: VENTER, J. Craig et al.
TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 66400, Application US/09949016
Patent No. 6812339
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Best Local Similarity
                    Best Local Similarity
                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: VENTER, J. Craig et al.
TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
                                                                                                                                                                                        ORGANISM: Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
                                                                                                                                                                                                                 TYPE: DNA
                                                                                                                                                                                                                                         LENGTH:
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                                                                                                                                                                                                                                       110243
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  Conservative
                 3.68;
57.48;
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Score 36.6; D
Pred. No. 3.3;
0; Mismatches
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                                        DB 3;
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                                        Length 110243;
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RESULT 14
US-09-823-373-27/c
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                                                                                                                                                                                                                                                                                                                                                                                              Sequence 27, Application US/09823373 Patent No. 6870038 GENERAL INFORMATION:
                                                                SEQ ID NO 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: Microsoft Office 97
SEQ ID NO 30
LENGTH: 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Payne, Mark
APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of a Gene for Nitrilase from
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION SEQ ID NOS: 32
NUMBER OF SEQ ID NOS: 32
NUMBER OF SEQ ID NOS: 32
NUMBER OF SEQ ID NOS: 32
                                                                                                                     APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of a
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION UMMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
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                                                                                     NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Chauhan, Sarita
APPLICANT: DiCosimo, Robe
                                                                                                                                                                                                                                                                                                                                    APPLICANT:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: DNA
ORGANISM: Artificial Sequence
                                         ENGTH: 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
nes 51; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12242 AGTGGTCACTTAGAGCAGTGGTTCTCAAAGTGTGATCGTGGACCCCTGGGGGCTC 12296
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                                                                                                                                                                                                                                                                                                                                  DiCosimo, Robert
Payne, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGCGTACCATCTACGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTCATCGACGAGAGAGGTGAGATTGTTGCAAATCGTCGTAAGTTGAAGCCAACTCACGTT
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Payne, Mark
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Pred. No. 0.17
0; Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26;
                                                                                                                                                                                                                                                               Gene for Nitrilase from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 90;
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Search completed: April 27, Job time : 212.215 secs
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; FEATURE;
; OTHER INFORMATION: Description of Artificial Sequence:Synthetic;
; OTHER INFORMATION: oligonucleotide
US-09-823-373-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-823-373-32/c
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                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of a Gene for Nitrilase from
TITLE OF INVENTION: Acidovorax Facilis 72W
TITLE OF INVENTION: Acidovorax Facilis 72W
TITLE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR TILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOPTWARE: Microsoft Office 97
SEQ ID NO 32
SOPTWARE: Microsoft Office 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 32 Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: Chauhan, Sarita
APPLICANT: DiCosimo, Robe
                                                                                                                                                                                                                                                          Query Match
Best Local (
                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 53;
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                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: Description of Artificial Sequence:Synthetic OTHER INFORMATION: oligonucleotide
                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 90
                                                                                                                                                                                                                                                        Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            749 CACGTATCATAGGGCCTGATGGTGGTGACTTGGTCGCGCCTCTTGCCGAAAATGAAGAGG 808
                                                                              27 GTGCCTCTTTGATCGCTTTCCCAGAA 2
                                                                                                                                                         87 TGGACGCAGACGCTACTATTGACAAGTCTATCGGTATCATCGAAGAAGCTGCCCAAAAGG
                                                                                                                                                                                            50 TGGATTTGGAGGCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATA 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  32, Application US/09823373
5. 6870038
                                                                                                                                                                                                                                        54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     88 CAAGAATTTACGGTCCAGATGGATCTGAGCTTGCCAAGCCTTTGGCTGAAGATGCTGAGG
                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTATTTTGTACGCTGAGATCGAT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Payne, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DiCosimo, Robert
                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
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                                                                                                                                                                                                                                                        3.4%;
                2006, 01:43:02
                                                                                                                                                                                                                                                        Score 34.8; DB 3; Pred. No. 0.26;
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Pred. No.
                                                                                                                                                                                                                                      Mismatches
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Listing first 45 summaries
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Published Applications NA_Main:*

1: /cgn2 6/ptodata/1/pubpna/USO7_PUBCOMB.seq:*

2: /cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*

3: /cgn2_6/ptodata/1/pubpna/USO8_PUBCOMB.seq:*

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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396.4	396.4	399.6	399.6	399.6	399.6	399.6	497.8	497.8	497.8	497.8	497.8	499.4	499.4	499.4	499.4	499.4	1012.4	1012.4	1012.4	1012.4	1012.4	1014	Score
39.1	39.1	39.4	39.4	39.4	39.4	39.4	49.1	49.1	49.1	49.1	49.1	49.3	49.3	49.3	49.3	49.3	99.8	99.8	99.8	99.8	99.8	100.0	Query Match
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311.4	311.4	311.4	311.4	319	319	319	319	319	358.6	358.6	358.6	358.6	358.6	364.2	364.2	364.2	364.2	364.2	396.4	396.4	396.4
30.7	30.7	30.7	30.7	31.5	31.5	31.5	31.5	31.5	35.4	35.4	35.4	35.4	35.4	35.9	35.9	35.9	35.9	35.9	39.1	39.1	34.1
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			Query Match Best Local : Matches 101	NUMBER OF SE SOFTWARE: PA SEQ ID NO 3 LENGTH: 101 TYPE: DNA ORGANISM: U FEATURE: OTHER INFOR OTHER INFOR OTHER INFOR OTHER EY: C LOCATION: (US-09-751-299-3 Sequence 3, A Sequence 4, A
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Sequence 385, Application US/10146772

Publication No. US20030124698A1

GENERAL INFORMATION:
APPLICANT: Short, Jay
APPLICANT: Weiner, David
APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: DeSantis, Grace
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
FILE REFERENCE: Docket No. US20030124698A1 DIV-013US
FILE REFERENCE: Occhet No. US20030124698A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
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PRIOR APPLICATION NUMBER: US 60/309,006

PRIOR PILING DATE: 2001-07-30

PRIOR APPLICATION NUMBER: US 60/351,336

PRIOR PILING DATE: 2002-01-22

PRIOR PILING DATE: 2002-01-22

PRIOR APPLICATION NUMBER: US 60/300,189

PRIOR PILING DATE: 2001-06-21

PRIOR APPLICATION NUMBER: US 09/751,299

PRIOR PILING DATE: 2000-12-28

PRIOR PILING DATE: 2000-12-07

PRIOR PILING DATE: 2000-12-07

PRIOR PILING DATE: 1999-12-29

PRIOR APPLICATION NUMBER: US 60/173,609

PRIOR PILING DATE: 1999-12-29

NUMBER OF SEQ ID NOS: 386

SOFTWARE: FASTSEQ for Windows Version 4.0

SEQ ID NO 385

LENGTH: 1014

TYPE: DNA
ORGANISM: Unknown
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US-10-146-772-385
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      TCGTGTGCGCTCGTTTCACAAICCATGATCGATATGCTTTGTACAGATGACGAAAAGCAT
                                                                                          GATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCG
                                                                                                                                              CATTOTOCOGCTTGGCCGAGCTTTAGCCTTTATCCTAATGCGGCGAAAGCCCTGGGGCCT
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APPLICANT: DESARTLIS, GIRCE
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark

TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040002147A1 DIV-013US
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,299
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 60/354,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
NUMBER: OF SEQ ID NOS: 386
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                                                                                                                                                                     ; OTHER INFORMATION: US-10-241-742-385
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APPLICANT: Short, Jayid
APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
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US-10-241-742-385
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LENGTH: 1014
TYPE: DNA
ORGANISM: Unknown
FEATURE:
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Matches 1013
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                                  ATGAMAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGAAG
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Pred. No. 0;
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GENERAL INFORMATION:
APPLICANT: Short, Jay
APPLICANT: Weiner, Dav
APPLICANT: Chaplin, Je
APPLICANT: Chi, Ellen
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US-10-440-523-385
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Weiner, David
Chaplin, Jennifer
Chi, Ellen
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FILE REFERENCE: DOCKET NO. US20040014195A1 DIV-013US
FURRENT APPLICATION UNMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR REILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2002-01-22
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR PILING DATE: 2000-10-28
PRIOR PILING DATE: 2000-12-28
PRIOR PILING DATE: 2000-12-07
PRIOR PILING DATE: 2000-12-07
PRIOR PILING DATE: 2000-12-07
PRIOR PILING DATE: 2000-12-07
PRIOR PILING DATE: 1999-12-29
PRIOR FILING DATE:
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LENGTH: 1014
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Best Local Similarity 99.9%;
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ORGANISM: Unknown
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CATTGTGCGGCCTTGGCCGAGCTTTAGCCTTATCCTAATGCGGCGAAAGCCCTGGGGCCT
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APPLICANT: McQuaid, Jeffrey
APPLICANT: Stege, Justin
TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE PRESENCE OF
TITLE OF INVENTION: NITRILES AND/OR CYANIDE
FILE REFERENCE: 09010-900001
CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR FILING DATE: 2002-05-15
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 385
LENGTH: 1014
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US-10-440-503-385
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                                                                                                                              Best Local Similarity Matches 1013; Conserv
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APPLICANT:
APPLICANT:
APPLICANT:
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APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
                                                                                                                                                                                                               OTHER INFORMATION: Obtained from an environmental
                                                                                                                                                                                                                            ORGANISM: Unknown FEATURE:
                                                                                                                                                                                                                                                             TYPE: DNA
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                    GCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTG
                                                                                         ATGAAAGAAGCTATCAAGGTCGCCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAG
 GCGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTG
                                                                 ATGAAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGAAG
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Burk, Mark J.
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o. US20040038419A1
                                                                                                                                Conservative
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                                                                                                                                            99.8%;
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                                                                                                                              Score 1012.4;
Pred. No. 0;
0; Mismatches
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RESULT 6
US-10-461-925-385
US-10-461-925-385; Sequence 385, Application US/10461925; Publication No. US20040053378A1
; GENERAL INFORMATION:
   APPLICANT: Mark J. Burk
   APPLICANT: DeSantis, Grace
   APPLICANT: Morgan, Brian
   APPLICANT: Morgan, Brian
   APPLICANT: PROCESSES FOR MAKII
   TITLE OF INVENTION: PROCESSES FOR MAKII
   FILE REFERENCE: 09010-270001
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CCURRENT FILING DATE: 2003-06-13
PRIOR APPLICATION NUMBER: US 60/389,317
PRIOR FILING DATE: 2002-06-13
PRIOR FILING DATE: 2002-06-28
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 385
LENGTH: 1014
TYPE: DNA
ORGANISM: Unknown
FEATURE:
CTHER INFORMATION: Obtained from an enviror US-10-461-925-385
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Best Local Similarity
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Pred. No. 0;
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RESULT 7
US-10-146-772-47
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APPLICANY: BURK, MARK
TITLE OF INVENTION: Nitrilases
TITLE REFERENCE: Docket No. US20030124698A1 DIV-013US
FILE REFERENCE: Docket No. US200301246,772
CURRENT APPLICATION NUMBER: US10/146,772
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 60/254,414
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SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 47
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APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
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GENERAL INFORMATION:
APPLICANT: Short, Jay
APPLICANT: Short, Jay
APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: Mesantis, Grace
APPLICANT: Madden, Mark
APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
ITILE OF INVENTION: Nitrilases
TITLE OF INVENTION: NUMBER: US/10/241,742
CURRENT APPLICATION NUMBER: US/10/146,772
PRIOR APPLICATION NUMBER: US/10/146,772 RESULT 8 US-10-241-742-47 Sequence 47, Application US/10241742 publication No. US20040002147A1

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PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR FILING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR PILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR PILING DATE: 1999-12-29
PRIOR FILING DATE: 1999-12-29
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LENGTH: 1014
TYPE: DNA
ORGANISM: Unknown
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SOFTWARE: FastSEQ for Windows Version
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CGTGTGCGCTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCATG
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                                                     AAGTAAATGTCGCAGCTTCTCGGATCTACGCCGTGGAAGGGCAGTGTTTTGTTCTCGCTT
                                                                             ATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGT
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Pred. No. 1.6e-
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TITLE OF INVENTION: NITITIABES

FILE REFERENCE: DOCKET NO. US.20040014195A1 DT

CURRENT APPLICATION NUMBER: US/10/440,523

CURRENT FILING DATE: 2003-05-15

PRIOR APPLICATION NUMBER: US/10/146,772

PRIOR FILING DATE: 2002-05-15

PRIOR PPLICATION NUMBER: US 60/309,006

PRIOR FILING DATE: 2001-07-30

PRIOR PPLICATION NUMBER: US 60/351,336

PRIOR APPLICATION NUMBER: US 60/351,336

PRIOR FILING DATE: 2002-01-22

PRIOR PILING DATE: 2001-06-21

PRIOR APPLICATION NUMBER: US 60/300,189

PRIOR APPLICATION NUMBER: US 60/300,189

PRIOR APPLICATION NUMBER: US 60/304,144

PRIOR APPLICATION NUMBER: US 60/254,414

PRIOR APPLICATION NUMBER: US 60/254,414

PRIOR PILING DATE: 2000-12-07
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US-10-440-523-47
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APPLICANT: Weiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: DeSantis, Grace
                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                      SEQ ID NO 47
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                                                                                                                       Matches
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SOFTWARE: FastSEQ for Windows
                                                                                                                                                                                                                                      LENGTH: 1014
TYPE: DNA
ORGANISM: Unknown
FEATURE:
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CGACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGA
                                                                 TGAAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAGG
                                         TGAAAGAAGCAATCAAAAGTAGCCTGTGTGCAAGCAGCTCCAGTCTTTCTCGACCTGGACG
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Burk, Mark
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ilarity 68.3%;
Conservative
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                                                                                                                                                                                                                                                                                                                                         Version
                                                                                                                   Score 499.4; DB 7;
Pred. No. 1.6e-161;
0; Mismatches 321;
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; Sequence 47, Application US/10440503; Publication No. US20040038419A1; GENERAL INFORMATION:
; APPLICANT: Weiner, David Paul; APPLICANT: Chaplin, Jennifer Ann; APPLICANT: Chi, Ellen; APPLICANT: Milan, Aileen
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APPLICANT: Stege, Justin
APPLICANT: Stege, Justin
TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THI
TITLE OF INVENTION: NITRILES AND/OR CYANIDE
FILE REFERENCE: 09010-900001
CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR FILING DATE: 2002-05-15
NUMBER OF SEQ ID NOS: 386
SOPTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 47
LENGTH: 1014
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ORGANISM: Unknown
FEATURE:
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McQuaid, Jeffrey
CGTGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTTGTACAGATGACGAAAAAGCATG
                                                               ATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGT
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Burk, Mark J.
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PRIOR APPLICATION NUMBER: US 60/389,317
PRIOR PILING DATE: 2002-06-13
PRIOR PILING DATE: 2002-06-13
PRIOR PILING DATE: 2002-06-28
PRIOR FILING DATE: 2002-06-28
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 47
LENGTH: 1014
TYPE: DNA
ORGANISM: Unknown
PEATURE:
OTHER INFORMATION: Obtained from an environ
US-10-461-925-47
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Publication No. US20040053378A1
GENERAL INFORMATION:
APPLICANT: Mark J. Burk
APPLICANT: DeSantis, Grace
APPLICANT: Morgan, Brian
APPLICANT: Zhu, Zoulin
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Best Local :
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CURRENT APPLICATION NUMBER: US/10/461,925
CURRENT FILING DATE: 2003-06-13
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TITLE OF INVENTION: PROCESSES FOR MAKING (R)-ETHYL 4-CYANO-3-HYDROXYBUTYRIC ACID
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Similarity 68.3%;
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      GTGAACGGGTCGGTGGCACCCTTTACATCAGTCAGTGGTTCATAGGCGATAATGGTGACA 361
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                                           AGGCCAAGCGCATCAGTGAGGCCGCCCAGCGCGCGCGGTATATACGTCGCGCTAGGGTACA
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Pred. No. 1.6e-161;
0; Mismatches 321;
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TITLE OF INVENTION: NITTILAGES
FILE REFERENCE: DOCKET NO. US20030124698A1 DT
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR PILING DATE: 2002-01-22
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR FILING DATE: 2001-06-21
PRIOR FILING DATE: 2000-12-28
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APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: Mesaden, Mark
APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
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PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 57
LENGTH: 1014
TYPE: DNA
ORGANISM: Unknown
FEATURE:
FEATURE: TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TOTALE TO THE TO
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APPLICANT: DESARTIS, Grace
APPLICANT: Madden, Mark
APPLICANT: Madden, Mark
APPLICANT: Madden, Mark
ITILE OF INVENTION: NITTILESS
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
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Best Local Similarity
Matches 691; Conserva
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
ORGANISM: Unknown
FEATURE:
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DeSantis, Gra
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Pred. No. 5.9e-161;
0; Mismatches 322;
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RESULT 14

US-10-440-523-57

; Sequence 57, Application US/10440523
; Publication No. US20040014195A1
; GENERAL INFORMATION:
APPLICANT: Meiner, David
APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
; APPLICANT: Milan, Alleen
; APPLICANT: Milan, Alleen
; APPLICANT: Mesantis, Grace
APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
; TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040014195A1 DIV
; CURRENT APPLICATION NUMBER: US/10/440,523
; CURRENT FILING DATE: 2003-05-15
; PRIOR APPLICATION NUMBER: US/10/146,772
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PRIOR FILING DATE: 2001-07-30
PRIOR PELLOATION NUMBER: US 60/309,006
PRIOR PELLOATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR PELLOATION NUMBER: US 60/300,189
PRIOR PELLOATION NUMBER: US 09/751,299
PRIOR PELLOATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR PILING DATE: 2000-12-07
PRIOR PELLOATION NUMBER: US 60/173,609
PRIOR PILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
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SEQ ID NO 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
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OTHER INFORMATION:
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TYPE: DNA
ORGANISM: Unknown
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  CGTGTGCGCTCGTTTCACAATCCATGATCGATATGCTTTGTACAGATGACGAAAAGCATG
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                                                                                          ATGTCAATGTAGCGGCCTCTCGAATCTATGCCGTTGAAGGGCAATGCTTCGTACTAGCGT
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Pred. No. 5.9e-161;
0; Mismatches 322;
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APPLICANT: Weiner, David Paul
APPLICANT: Chaplin, Jennifer Ann
APPLICANT: Chi, Ellen
APPLICANT: Milan, Alleen
APPLICANT: Milan, Alleen
APPLICANT: DeSantis, Grace
APPLICANT: DeSantis, Grace
APPLICANT: Burk, Mark J.
APPLICANT: Stege, Justin
ITILE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE
ITILE OF INVENTION: NITRILES AND/OR CYANIDE
ITILE OF INVENTION UNITRILES AND/OR CYANIDE
ITILE OF INVENTION UNITRILES AND/OR CYANIDE
ITILE OF INVENTION UNIMER: US/10/440,503
CURRENT APPLICATION NUMBER: US 60/380,737
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR APPLICATION DATE: 2002-05-15
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO S7
LENGTH: 1014
TYPE: DNA
ORGANISM: Unknown
FEATURE: INFORMATION: Obtained from an environmental se
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US-10-440-503-57
; Sequence 57, Application US/10440503
; Publication No. US20040038419A1
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Matches 691;
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Search completed: April 27, Job time: 979.006 secs 2006,

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Maximum Match 100%
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Published_Applications_NA_New:*

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2: /SIDSS/ptodata/2/pubpna/USO5_NEW_PUB.seq:*

3: /SIDSS/ptodata/2/pubpna/USO7_NEW_PUB.seq:*

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Copyright (c) 1993 - 2006 Biocceleration Ltd.
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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Sequence 56141, A Sequence 669550,	Sequence 189364, Sequence 1102773,	Sequence 425677,	Sequence 628387,	Sequence 166788,	Sequence 166788,	Sequence 20685, A	Sequence 6953, Ap	Sequence 13, Appl	Sequence 7, Appli	Sequence 11, Appl	Sequence 5, Appli	w `	Sequence 17, Appl	Sequence 15, Appl	Sequence 6, Appli	Description

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Sequence 70230, App Sequence 187799, Sequence 187800,	Sequence 1070, Ap Sequence 31224, A Sequence 31224, A Sequence 31224, A	Sequence 1088506, Sequence 1088575, Sequence 1, Appli Sequence 24, Appl Sequence 24, Appl	Sequence 64760, A Sequence 64760, A Sequence 368038, Sequence 438304, Sequence 1051713, Sequence 531203, Sequence 51144612,	Sequence 1, Appli Sequence 637, App Sequence 75064, A Sequence 688473, Sequence 52, Appl Sequence 206, App Sequence 3028, Ap

ALIGNMENTS

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US-10-537-075-6

Sequence 6, Application US/10537075

Publication No. US20060014291A1

GENERAL INFORMATION:

APPLICANT: Kesseler, Maria

APPLICANT: Zelinski, Thomas

APPLICANT: Hauer, Bernhard

TITLE OF INVENTION: L-RHAMNOSE-INDUCIBLE EXPRESSION SYSTEMS

FILE REFERENCE: 12810-00091-US

CURRENT APPLICATION NUMBER: US/10/537,075

CURRENT FILING DATE: 2005-06-01

PRIOR APPLICATION NUMBER: DE 102 56 381.0

PRIOR FILING DATE: 2002-12-02

PRIOR APPLICATION NUMBER: DE 102 56 381.0

PRIOR FILING DATE: 2002-12-02

NUMBER: OF SEQ ID NOS: 19
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; NAME/KEY: CDS
; LOCATION: (1)..(1068)
; OTHER INFORMATION: coding for nitrilase
US-10-537-075-6
                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 497
                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: PatentIn version 3.3
SEQ ID NO 6
LENGTH: 1071
TYPE: DNA
ORGANIAM: Alcaligenes faecalis
                                                                                                                                                                                                                                                        Local Similarity
124 GCCTTTCCGGAAACTTGGATTCCAGGCTACCCATGGTTTCTTTGGCTTGACTCACCAGCA 183
                                                                                                                                                                                                                                      497;
                                            70 GGTGTTGATAAAACCATTGAGCTGGCTCGTCAGGCCCGCGATGAGGGCTGTGACCTGATC
                                                                                          64 ACGGTGGACAAAACCATTGAGTTGATGGAAGAAGCAGCACGTAATAATGCTCGTCTGATC
                                                                                                                                           10 AGAAAAATCGTCCGGGCAGCCGCCGTACAGGCCGCCTCTCCCAACTACGATCTGGCAACG
                                                                                                                                                                                4 AAAGAAGCTATCAAGGTCGCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTTGGAGGCG
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ilarity 54.6%;
Conservative
                                                                                                                                                                                                                                 Score 248.6; DB 9;
Pred. No. 3.8e-70;
0; Mismatches 414;
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RESULT 2
US-10-919-182-15
; Sequence 15, Application US/10919182
; Publication No. US20060035352A1
; GENERAL INFORMATION:
    APPLICANT: D.1. duPont de Nemours and Company, Inc.
; APPLICANT: D.1 Cosimo, Robert
; APPLICANT: D.1 Cosimo, Robert
; APPLICANT: Payne, Mark
; APPLICANT: Payne, Mark
; APPLICANT: Payne, Mark
; APPLICANT: C. Yeefe, Daniel
; TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
; FILE REFERRNCE: CL2584 US NA
; CURRENT APPLICATION NUMBER: US/10/919,182
; CURRENT FILLING DATE: 2004-08-16
; NUMBER OF SEQ ID NOS: 18
; SOFTMARE: Patentin version 3.2
; SEQ ID NO 15
; LENGTH: 1110
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US-10-919-182-15
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                                                       GCAGACCCTGCTGGTCATTATTCCCGTCCGACATTACTCGCTTGCTAATAGATCGCAGC
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                        GCCGATCCGGTCGGGCACTATTCGCGGCCTGACGTGCTGTCGGTCCAGTTCGACCCGCGC
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Pred. No. 1.1e-60;
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Best Local Similarity
Matches 489; Conserv
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TYPE: DNA
ORCANISM: Artificial sequence
FEATURE:
OTHER INFORMATION: Mutant nitri
FEATURE:
NAME/KEY: CDS
LOCATION: (1)..(1110)
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APPLICANT: Di Cosimo, Robert
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
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; Sequence 3, Application US/10919182
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; GENERAL INFORMATION:
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APPLICANT: Di Cosimo, Robert
APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT APPLICATION DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 3
                                                                                                                                                                                                                                                                                                                                                 Matches 488;
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ORGANISM: Acidovorax facilis
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                                                                                                                             ATTICCGGGCTACCCCTATTGGGCGTGGCTCGGCGACGTGAAGTACAGCCTAAGCTTTACT
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                                                                                                                                                                                                       GGCATCATCGAAGAAGCTGCCCAAAAGGGGCGCGAGTCTGATCGCTTTCCCCGGAAGTATTC
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Pred. No. 3.7e-60;
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Sequence 5, Application US/10919182

publication No. US20060035352A1

publication No. US20060035352A1

publication No. US20060035352A1

publication No. US20060035352A1

publicant: Divormation: de Nemours and Company, Inc.

APPLICANT: Di Cosimo, Robert

APPLICANT: Di Cosimo, Robert

APPLICANT: Payne, Mark

APPLICANT: D'Xeefe, Daniel

TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACI

FILE REFERENCE: CL2564 US NA

FULBRATT APPLICATION UNUMBER: US/10/919,182

CURRENT FILING DATE: 2004-08-16

NUMBER OF SEQ ID NOS: 18

SOFTWARE: Patentin version 3.2

SEQ ID NO 5

LENGTH: 1110
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     Application US/10919182
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pred. No. 3.7e-60;
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APPLICANT: E.I. dupont de Nemours and Company, Inc.
APPLICANT: D'Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REPERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 11
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Best Local Similarity
Matches 488; Conserv
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TYPE: DNA
ORGANISM: Artificial sequence
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NAME/KEY: CDS
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OTHER INFORMATION: Mutant
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TYPE: DNA
ORGANISM: Artificial sequence
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LOCATION: (1)
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51.9%;
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                                                                                                                                                                                                                                                                                                                                                                      Score 216.4; DB 9;
Pred. No. 1.2e-59;
0; Mismatches 451;
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Sequence 7, Application US/10919182

Publication No. US20060035352A1

GENERAL INFORMATION:

APPLICANT: E.I. dupont de Nemours and Company, Inc.

APPLICANT: Di Cosimo, Robert

APPLICANT: Payne, Mark

APPLICANT: O'Keefe, Daniel

TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS

FILE REFERENCE: CL2584 US NA

CURRENT APPLICATION NUMBER: US/10/919,182

CURRENT FILING DATE: 2004-08-16

RUMBER OF SEQ ID NOS: 18
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                                                                                     CTTTACATCAGTCAGTGGTTCATAGGCGAAAAG
                                                                                                                                                                                                                                                                              TCACGCTATCACGAGAATTCGTTGGAGCTAGGTGACGACCGTATGCGTCGCCTCCAGCTG
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                                                    CGCTATCTGAGCCAGGTGTTCATCGACGAGCGTGGCGAGATCGTTGCCAATCGGCGCAAG
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Sequence 13, Application US/10919182
Publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. dubont de Nemours and APPLICANT: Di Cosimo, Robert
APPLICANT: Di Cosimo, Robert
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-H)
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: PatentIn version 3.2
SEQ ID NO 13
LENGTH: 1110
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                                                                                           OTHER INFORMATION: Mutant FRATURE:
NAME/KEY: CDS
LOCATION: (1)..(1110)
US-10-919-182-13
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                                              Query Match
Best Local Similarity
Matches 487; Conserv
                                                                                                                                                     TYPE: DNA
ORGANISM: Artificial sequence
FEATURE:
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 GCAACCGTTCAGGCAGAGCCGGTATGGCTCGACGCAGACGCAACGATCGACAAGTCGATC
               GCCTGCGTGCAAGCCGCCCCGATCTACATGGATTTGGAGGCGACGGTGGACAAAACCATT 81
                                                 Conservative
                                                          21.3%;
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                                              Score 216.4; DB 9;
Pred. No. 1.2e-59;
0; Mismatches 451;
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  Sequence 6953, Application US/11096568A

Publication No. US20060048240A1

GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA F
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592FUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
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DNA

Fragments

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Corresponding

Polypeptides

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931 AATCATACGCCAGTTCATCGCATCGGCATTGACGGTCG
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; TYPE: DNA
; ORGANISM: Glycine max
; FEATURE:
; NAME/KEY: misc_feature
; LOCATION: (1)...(1415)
; OTHER INFORMATION: Ceres Seq. II
US-11-096-568A-6953
GENERAL INFORMATION:

APPLICANT: Alexandrov, Nickolai et al.

TITLE OF INVENTION: Sequence-Determined DNA F
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20685
LENGTH: 1706
TYPE: DNA
ORGANISM: Zea mays subsp. mays
FEATURE:
                                                                                                                                                                                                       RESULT 10
US-11-096-568A-20685
; Sequence 20685, Application US/11096568A
; Publication No. US20060048240A1
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Pred. No. 4.5e-16;
0; Mismatches 255; Indels
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Sequence 166788, Application US/10932182A

Publication No. US20060046253A1

GENERAL INFORMATION:
APPLICANT: NAKAO, YOSHIHIRO
APPLICANT: NAKAO, YOKIKO
APPLICANT: KODAMA, YUKIKO
APPLICANT: ASHIKARI, TOSHIHIKO
TITLE OF INVENTION: METHODS FOR ANALYZING GENES OF INDUSTRIAL YEASTS
FILE REFERENCE: 030685-043

CURRENT APPLICATION NUMBER: US/10/932,182A

CURRENT APPLICATION TOSHIHIKO

TUTALO OF INVENTION: METHODS FOR ANALYZING GENES OF INDUSTRIAL YEASTS
FILE REFERENCE: 030685-043

CURRENT FILING DATE: 2004-09-02

NUMBER OF SEQ ID NOS: 197023

SOPTWARE: Patentin version 3.3

SEQ ID NO 166788

LENGTH: 597
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                                        US-10-932-182A-166788
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US-10-932-182A-166788
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   Query Match
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Best Local Similarity 49.8%;
                                                        TYPE: DNA
ORGANISM: Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME/KEY: misc_feature
LOCATION: (1)..(1706)
OTHER INFORMATION: Ceres Seq.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAAGGGAAAGGAAGACTTTCAGAAGTATCACGCATCTGCCATAGATGTGCCTGGTCCAGA
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   Score 70.4;
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Pred. No. 1.4e-15;
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   DB
   9
Length
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US-10-932-182A-166788
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SEO ID NO 166788
LENGTH: 597
TYPE: DNA
ORGANISM: Saccharomyces pastorianus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 166788, Application US/10932182A Publication No. US20060046253A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
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APPLICANT: KODAWA, YUKIKO
APPLICANT: FUJIMURA, TOMOKO
APPLICANT: ASHIKARI, TOSHIHIKO
TITLE OF INVENTION: METHODS FOR ANALYZING GENES OF INDUSTRIAL YEASTS
FILE REFERENCE: 030685-043
CURRENT FRELICATION NUMBER: US/10/932,182A
CURRENT FILING DATE: 2004-09-02
NUMBER OF SEQ ID NOS: 197023
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APPLICANT: NAKAN
APPLICANT: KODAN
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140; Conserv
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                                                                                                                                                       GCTTATGCTGTTGGGAGCACCTTCAACCGCTAACAAAATACGCTTTGTATGCACAAAAATG
                                                                                                                                                                                                                                                          AAGATGGCTACGTTGGGAAGCATCGAAAACTGATGCCGACAGCTGGCGAAAGACTGATAT
                                                                                                                                                                                                                                                                                          ATGGTGACACCATTGGGGCCCGGCGAAAGTTGAAACCTACTTTTGTTGAACGTACTTTGT 412
                                                                                                                                                                                                                                                                                                                                                      TTGAGATCTGGTGTGC 572
                                                                                               AAGAGATTCATTGTGC 548
                                                                                                                                                                                              GGGGTCAAGGCGATGGTTCGACTCTGCCTGTCGTGGATACCGCTGCTGGGAAGATTGGCG
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JRA, NORIHISA
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54.7%;
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                                                                                                                                                                                                                                                                                                                                                                                           <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                         Score 70.4; DB 9; Length 597; Pred. No. 3.9e-12;
                                                                                                                                                                                                                                                                                                                                                                                             Mismatches 116;
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Sequence 628387, Application US/09925065A

Publication No. US20040181048A1

GENERAL INFORMATION:
APPLICANT: Wans, David G.

TITLE OF INVENTION: Identification and Mapping of Single
TITLE OF INVENTION: Nuclectide Polymorphisms in the Human Genome
FILTRE FILTREST APPLICATION NUMBER: US/09/925,065A

CURRENT FILING DATE: 2001-08-08

PRIOR APPLICATION NUMBER: US 60/243,096

PRIOR FILING DATE: 2000-10-24

PRIOR FILING DATE: 2000-11-20

PRIOR APPLICATION NUMBER: US 60/252,147

PRIOR APPLICATION NUMBER: US 60/250,092

PRIOR APPLICATION NUMBER: US 60/250,092

PRIOR APPLICATION NUMBER: US 60/250,092

PRIOR APPLICATION NUMBER: US 60/250,092

PRIOR APPLICATION NUMBER: US 60/250,092

PRIOR APPLICATION NUMBER: US 60/250,092

PRIOR APPLICATION NUMBER: US 60/261,766

PRIOR FILING DATE: 2001-01-16

PRIOR FILING DATE: 2001-01-16

PRIOR FILING DATE: 2001-05-09

NUMBER OF SEQ ID NOS: 957086

SOFTWARE: FastSEQ for Windows Version 4.0

1. TENTYTH: 5.48
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; TYPE: DNA
; ORGANISM: Homo sapiens
US-09-925-065A-628387
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US-09-925-065A-425677/c
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CURRENT FILING DATE: 2001-08-08
PRIOR APPLICATION NUMBER: US 60/243,096
PRIOR FILING DATE: 2000-10-24
PRIOR APPLICATION NUMBER: US 60/252,147
PRIOR FILING DATE: 2000-11-20
PRIOR PILING DATE: 2000-11-30
PRIOR APPLICATION NUMBER: US 60/250,092
PRIOR PILING DATE: 2000-11-30
PRIOR APPLICATION NUMBER: US 60/261,766
PRIOR APPLICATION NUMBER: US 60/261,766
PRIOR APPLICATION NUMBER: US 60/289,846
PRIOR FILING DATE: 2001-05-09
NUMBER OF SEQ ID NOS: 957086
                                                                                            ; ORGANISM: Homo sapiens
US-09-925-065A-425677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 425677, Application US/09925065A Publication No. US20040181048A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
Query Match
Best Local Similarity
Matches 64; Conserv
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TITLE OF INVENTION: Identification and Mapping of Single
TITLE OF INVENTION: Nucleotide Polymorphisms in the Human Genome
FILE REFERENCE: 108827.135
                                                                                                                                             TYPE: DNA
                                                                                                                                                                 LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.4%;
Local Similarity 56.6%;
les 64; Conservative
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RESULT 15

US-10-301-480-489364/c

Sequence 489364, Application US/10301480

Publication No. US20060057564A1

GENERAL INFORMATION:
APPLICANT: Wang, David G.
TITLE OF INVENTION: In the Human Genome
FILE OF INVENTION IN the Human Genome
CURRENT PPLICATION NUMBER: US/10/301,480

CURRENT PPLICATION NUMBER: US/10/301,480

CURRENT PPLICATION NUMBER: US 10/215,598
PRIOR APPLICATION NUMBER: US 00/311,695

PRIOR PILING DATE: 2002-08-09
PRIOR FILING DATE: 2001-08-10
NUMBER OF SEQ ID NOS: 1226818
SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 489364

LENGTH: 563
TYPE: DNA
ORGANISM: Homo sapien
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Search completed: April 27, 2006, 00:22:15 Job time: 612.88 secs
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Best Local Similarity 56.1%;
Matches 64; Conservative
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                                                                                                                                                                        533 AAGAGATTCATTGTGCGGCTTGGCCGAGCTTTAGCCTTTATCCTAATGCGGCGA 586
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A;Status: preliminary A;Molecule type: DNA; I A;Residues: 1-366 <KOB:

protein

A; Accession: A45070

ALIGNMENTS

RESULT 1 A45070

nitrilase - Rhodococcus rhodochrous (;Species: Rhodococcus rhodochrous C;Species: Rhodococcus rhodochrous C;Date: 10-Jun-1993 #sequence_revision 18-Nov-1994 #text_change 31-Dec-2004 C;Accession: A45070 R;Kobayashi, M.; Komeda, H.; Yanaka, N.; Nagasawa, T.; Yamada, H. J. Biol. Chem. 267, 20746-20751, 1992 J. Biol. Chem. 267, 20746-20751, 1992 A;Title: Nitrilase from Rhodococcus rhodochrous J1. Sequencing and overexpression A;Reference number: A45070; MUID:93015976; PMID:1400390 A;Contents: J1

of the

á 밁 Ś δ A;Cross-references: UNIPROT:Q03217; UNIPARC:UPI000016FF36; GB:D11425; NID:g216933; PIDN A;Note: sequence extracted from NCBI backbone (NCBIN:116039, NCBIP:116040) C;Superfamily: nitrilase (carbon-nitrogen hydrolase) 밁 밁 δ 뫄 Ş 뫄 á Matches Query Match Best Local Similarity 305 249 189 185 129 125 RRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEIHCAA 184 309 156; 69 KFAVRYHENSLTMDSPHVQRLLDAARDHNIAVVVGISERDGGSLYMTQLVIDADGQLVAR 128 WPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKHALLL RKKLKPTHVERSVYGEGNGSDISVYDMPFARLGALNCWEHFQTLTKYAMYSMHEQVHVAS NORHTTPV DRSPKLPV 312 AGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKMAADPAGHYSRPDITRLLI 304 WPGMSLYQPEVPAFGVDAQLTATRMYALEGQTFVVCTTQVVTPEAHEFFCDNDEQRKLIG RGGGFARTIGPDGRDLATPLAEDEEGILYADIDLSAITLAKQAADPVGHYSRPDVLSLNF Conservative 47.48; 50.68; ; Score 836.5; DB 2; Length 36; Pred. No. 2.9e-68; 56; Mismatches 95; Indels Length 366; 1; Gaps 244 188 124 8

RESULT 2 A47181 nitrilase (EC 3.5.5.1), arylacetone-specific -C;Species: Alcaligenes faecalis

Alcaligenes

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A; Molecule type: DNA
A; Residues: 1-356 < KOB>
A; Residues: 1-356 < KOB>
A; Cross-references: UNIPROT: P20960; UNIPARC: UPI0000033514; GB: D13419; NID: 9216202; PIDN A; Cross-references: UNIPROT: P20960; UNIPARC: UPI0000033514; GB: D13419; NID: 9216202; PIDN A; Cross-reference extracted from NCBI backbone (NCBIN: 122081, NCBIP: 122082)
A; Nagasawa, T.; Mauger, J.; Yamada, H.

Bur. J. Blochem. 194, 765-772, 1990
A; Title: A novel nitrilase, arylacetonitrilase, of Alcaligenes faecalis JM3. Purification A; Reference number: S13860; MUID: 91099356; PMID: 2269298
A; Accession: S13860
A; Accession: S13860
A; Accession: S13860
A; Residues: protein
A; Residues: 1-33 < NAGS
A; Cross-references: UNIPARC: UPI0000175E31
C; Superfamily: nitrilase (carbon-nitrogen hydrolase)
C; Keywords: hydrolase
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R;Kobayashi, M.; Izui, H.; Nagasawa, T.; Yamada, H.
Proc. Natl. Acad. Sci. U.S.A. 90, 247-251, 1993
A;Title: Nitrilase in biosynthesis of the plant hormone indole-3
A;Reference number: A47181; MUID:93126352; PMID:8419930
A;Contents: JM3
A;Accession: A47181
A,Status: preliminary
A; Molecule type: DNA; protein
A; Residues: 1-383 < KOB>
A; Kross-references: UNIPARC: UPT0000130516; GB: D12583; NID: g216931;
A; Note: sequence extracted from NCBI backbone (NCBIN: 114184, NCBIP: 114185)
C; Superfamily: nitrilase (carbon-nitrogen hydrolase)
                                                                                                                                                                                                            RESULT 3
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C;Species: Rhodococcus rhodochrous
C;Species: Rhodococcus rhodochrous
C;Species: Rhodococcus rhodochrous
C;Date: 10-Jun-1993 #sequence_revision 18-Nov-1994 #text_change 31-Dec-2004
C;Date: 10-Jun-1993 #sequence_revision 18-Nov-1994 #text_change 31-Dec-2004
C;Date: 10-Jun-1992
C;Accession: A43470
R;Kobayashi, M.; Yanaka, N.; Nagasawa, T.; Yamada, H.
Biochemistry 31, 9000-9007, 1992
A;Title: Primary structure of an aliphatic nitrile-degrading enzyme, aliphatic
A;Reference number: A43470; MUID:93003039; PMID:1390687
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A;Status: preliminary
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56; Conservative
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49.7%; Pred. No. 1.1e-66;
tive 54; Mismatches 104
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nitrilase (EC 3.5.5.1) - Comamonas testosteroni C;Species: Comamonas testosteroni C;Species: Comamonas testosteroni C;Date: 14-Nov-1995 #sequence revision 08-Feb-1996 #text_change 31-Dec-2004 C;Accession: JC4212; PC4056 R;Levy-Schil, S; Soubrier, F.; Crutz-Le Coq, A.M.; Faucher, D.; Crouzet, J Gene 161, 15-20, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Accession: PC4056
A;Molecule type: protein
A;Residues: 154-162;295-302;323-340 <LE2>
A;Residues: 154-162;295-302;323-340 <LE2>
A;Cross-references: UNIPARC:UPI0000175E32; UNIPARC:UPI0000175E33; UNIPARC:UPI0000175E34
C;Comment: This enzyme is active on adiponitrile and cyanovaleric acid.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gene 161, 15-20, 1995
A;Title: Aliphatic nitrilase from a soil-isolated Comamonas
A;Reference number: JC4212; MUID:95369726; PMID:7642130
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A; Residues: 1-354 < LEV>
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Best Local Similarity
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                                                                                               DTIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEE 179
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                                                                       NLIGKHRKFKPTSSERAVWGDGDGSMAPVFKTEYGNLGGLQCWEHALPLNIAAMGSLNEQ
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IKVACVQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDS-----
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                                    IHCAAWPSFSLYPNAAKALGPDVNVAA-----
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49.8%; Pred. No. 6.6e-65;
                                                                                                                                                                                                                                                                                  36.1%; Score 638; DB 2;
41.2%; Pred. No. 3.4e-50;
ative 62; Mismatches 107
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                                  -SRIYAVEGOCFVLASCALVSOSMI 230
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cyanide hydratase (EC 4.2.1.66) - imperfect fungus (Glos (Species: Gloeocercospora sorghi (C;Date: 30-Sep-1993 #sequence_revision 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date: 30-Sep-1993 #text (C;Date:
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J. Biol. Chem. 263, 6310-6314, 1988
A;Title: Purification and properties of a nitrilase specific for the h
A;Reference number: A28658; MUID:88198177; PMID:2834373
A;Accession: A28658
A;Molecule type: DNA
A;Residues: 1-349 <STA>
A;Cross-references: UNIPROT:P10045; UNIPARC:UPI000013051A; GB:J03196;
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
A;Residues: 1-368 <WAN>
A;Cross-references: UNIPROT:P32964; UNIPARC:UPI0000128C2E; C;Comment: This enzyme converts HCN to formamide. C;Genetics:
A;Gene: Cht
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A28658
C;Species: Klebsiella ozaenae
C;Species: Klebsiella ozaenae
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999
C;Accession: A28658
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A;Cross-references: UNIPROT:Q55949; UNIPARC:UPI00000D7133; EMBL:D64005; GB:AB001339; NID. A;Note: the nucleotide sequence was submitted to the EMBL Data Library, June 1996 C;Genetics:
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C;Superfamily: nitrilase
C;Keywords: hydrolase
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C;Keywords: carbon-oxygen lyase; glycoprotein; hydro-lyase
F;286/Binding site: carbohydrate (Asn) (covalent) #status [
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A; Residues: 1-346 < KAN>
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A;Variety: PCC 6803
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RRKIKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEIHCAA 184
|||:||:||:||:||:||:||
RRKITFTYHERMVWGQGDGAGLRTVDTTVGRLGALACWEHYNPLARYALMAQHEQIHCGQ 192
                                                                                                                                                                                                                                                                                            IKVACVQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSPAWAM
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                                                                                                                                 KSHLKLYQEAVTVPGKVTQAIAQAAKTHGMVVVLGVNEREEGSLYNTQLIFDADGALVLK 132
                                                                                                                                                                                         QFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNGDTIGA 124
                                                                                                                                                                                                                                                        IRAAAAQISPVLFSQQGTMEKVLDAIANAAKKGVELIVFPETFVPYYPYFSFVEPPVLMG
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                                                                                                                                                                                                                                                                                                                                                                                  Score 523.5; DB 2;
Pred. No. 8.9e-40;
8; Mismatches 119;
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Pred. No. 5.6e-43;
6; Mismatches 118;
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A; Map position: 3
A; Introns: 44/1; 104/1; 202/1; 296/1
C; Superfamily: nitrilase (carbon-nit-C; Keywords: hwar-line)
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TA9147
T149147
nitrilase (EC 3.5.5.1) 1 [imported] - Arabidopsis thaliana
N;Alternate names: protein T10D17.100
N;Alternate names: protein T10D17.100
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Accession: T49147; T52260; T52263
C;Accession: T49147; T52260; T52263
R;D'Angelo, M; Vezzi, A; Modesto, D.; Pigazzi, M.; Valle, G.; Mewes, H.W.; Rudd, submitted to the Protein Sequence Database, April 2000
A;Reference number: Z25017
A;Accession: T49147
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A;Experimental source: cultivar Columbia
R;Bartel, B.; Fink, G.R.
Proc. Natl. Acad. Sci. U.S.A. 91, 6649-53, 1994
A;Title: Differential regulation of an auxin-producing nitrilase gene
A;Reference number: Z24515; MUID:8022831; PMID:8022831
A;Accession: T52263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: UNIPROT:D32961; UNIPARC:UPI0000001AE2; EMBL:AL353865; GSPDB:GN00061; A;Experimental source: cultivar Columbia; BAC clone T10D17 R;Hilebrand, H.; Bartling, D.; Weiler, E.W.

Plant Mol. Biol. 36, 89-99, 1998
A;Title: Structural analysis of the nit2/nit1/nit3 gene cluster encoding nitrilases, enz A;Reference number: Z26007; MUID:98145459; PMID:9484465
A;Accession: T52260
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A; Cross-references: UNIPARC: UPI000001AE2;
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A; Residues: 1-346 < DAN>
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                                                                                                                                               SPAWAMQFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDN
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       GQFLGKHRKLMPTSLERCIWGQGDGSTIPVYDTPIGKLGAAICWENRMPLYRTALYAKGI
                                               GDTIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNE 178
                                                                                                    NEEGRDEF-RKYHASAIHVPGPEVARLADVARKNHVYLVMGAIEKEGYTLYCTVLFFSPQ
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Pred. No. 1.4
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A;Molecule type: mRNA
A;Residues: 1-346 <BAR>
A;Cross-references: UNIPROT:P32961; UNIPARC:UPI0000130513; EMBL:X63445; NID:g16399; PIDN
C;Superfamily: nitrilase (Carbon-nitrogen hydrolase)
C;Keywords: hydrolase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Bartling, D.; Seedorf, M.; Mithoefer, A.; Weiler, E.W. Eur. J. Biochem. 205, 417-424, 1992
A;Title: Cloning and expression of an Arabidopsis nitrilase A;Reference number: S22398; MUID:92209532; PMID:1555601
A;Accession: S22398
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                                                                                                                                                                                                                                                                                                                                                                                                                    IKVACVQAAPIYMDLEATVDKTIELMEBAARNNARLIAFPETWIPGYP-----WFLWLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---DMLCT---DDEKHALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILA
                                                                                                                                                                                                                                                                                                                                                                                    VRVTIVOSSTVYNDTPATIDKAEKYIVEAASKGAELVLFPEGFIGGYPRGFRFGLAVGVH 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KLYFDSVGHYSRPDVLHLTVNEHPRKSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KMAADPAGHYSRPDITRLLIDRSPKLPV 312
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EIHCA-----AWPSFSLYFNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMI-
                                                                                                                                                                                                                                                                                                                                       SPAWAMQFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDN 118
  KLYFDSVGYYSRPDVLHLTVNEHPRKSV 331
                                  KMAADPAGHYSRPDITRLLIDRSPKLPV 312
                                                                          DHPDYLFTDWYDDKEHDSIVSQGG-SVIISPLGQVLAGPNFES-EGLVTADIDLGDIARA 303
                                                                                                              ---DMLCT---DDEKHALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILA
                                                                                                                                                  ELYCAPTADGSKEWQSSMLH--------IAIEGGCFVLSACQFCQRKHFP
                                                                                                                                                                                       EIHCA-----AWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMI- 230
                                                                                                                                                                                                                                                                   GDTIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNE 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 493.5; DB 2
Pred. No. 4.8e-37;
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nitrilase (EC 3.5.5.1) [similarity] - Arabidopsis thaliana N;Alternate names: T10D17.90 C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 13-Jan-1995 #sequence revision 12-Jan-1995 #sequence

C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 13-Jan-1995 #sequence_revision 13-Jan-1995
C;Accession: S31969; T49146; T52258
R;Bartling, D.; Seedorf, M.; Schmidt, R.C.; Weiler,

A; Molecule type: mRNA A; Residues: 1-339 <BA

A;Description: Arabidopsis
A;Reference number: S31969
A;Accession: S31969

submitted to the EMBL Data Library, September 199; A;Description: Arabidopsis thaliana nitrilases are

encoded

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two-member gene family:

Ε. Σ.

#text_change

31-Dec-2004

RESULT 10 S31969

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nitrilase (EC 3.5.5.1) 2 [imported] - Arabidopsis thaliana (Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 20-Oct-2000 #sequence_revision 20-Oct-2000 #text_c) C;Accession: T52259 R;Hillebrand, H.; Bartling, D.; Weiler, E.W. Plant Mol. Biol. 36, 89-99, 1998 Plant Mol. Biol. 36, 89-99, 1998 A;Reference number: Z26007; MUID:98145459; PMID:9484465 A;Accession: T52259
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A;Cross-references: UNIPARC:UPI000001444; EMBL:X68305;
A;Experimental source: cultivar Landsberg erecta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Cross-references: UNIPARC:UPI000001444; EMBL:AL353865; GSP
A;Experimental source: cultivar Columbia; BAC clone T10D17
R;artling, D.; Seedorf, M.; Schmidt, R.C.; Weiler, E.W.
Proc. Natl. Acad. Sci. U.S.A. 91, 6021-5, 1994
A;Title: Molecular characterization of two cloned nitrilases
A; Experimental C; Genetics:
                    A;Cross-references: UNIPROT:004907; UNIPARC:UPI00000A5899; EMBL:Y07648; PIDN:CAA68934.3
A;Experimental source: cultivar Columbia
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                                                              A; Residues: 1-339 <HIL>
                                                                                   A; Molecule type: DNA
                                                                                                      A;Status: preliminary; translated from GB/EMBL/DDB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Introns: 37/1; 97/1; 195/1; 289/1
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Superfamily: nitrilase (carbon-nitrogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
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Pred. No. 5.8e-37;
1; Mismatches 110;
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A;Cross-references: UNIPROT:P46010; UNIPARC:UPI000000BDB6; A;Experimental source: cultivar Columbia; BAC clone T10D17 R;Hillebrand, H.; Bartling, D.; Weiler, E.W. Plant Mol. Biol. 36, 89-99, 1998
A;Title: Structural analysis of the nit2/nit1/nit3 gene clu A;Reference number: Z26007; MUID:98145459; PMID:9484465
A;Accession: T52261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nitrilase (EC 3.5.5.1) 3 [imported] - Arabidopsis t. N;Alternate names: protein T10D17.110 C;Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 02-Jun-2000 #sequence revision 02-Jun-2000 C;Accession: T49148; T52261; T52264 R;D'Angelo, M.; Vezzi, A.; Modesto, D.; Pigazzi, M.
A,Cross-references: UNI
A;Experimental source:
C;Genetics:
A;Gene: ATSP:T10D17.110
                                                                                                                                  Proc. Natl Acad. Sci. U.S.A. 91, 6649-53, 1994
A;Title: Differential regulation of an auxin-producing
A;Reference number: Z24515; MUID:8022831; PMID:8022831
A;Accession: T52264
                                                                                                                                                                                                                                 A;Cross-references: UNIPARC:UPI000000BDB6; EMBL:Y07648; A;Experimental source: cultivar Columbia
                                                                                A;Residues: 1-346 <BAR>
                                                                                              A;Status: preliminary; translated A;Molecule type: mRNA
                                                                                                                                                                                                                R;Bartel, B.; Fink,
                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-346 <HIL>
                                                                                                                                                                                                                                                                                                         A; Status: preliminary; translated
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A; Residues: 1-346 < DAN>
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A;Introns: 37/1; 97/1; 195/1; 289/1
C;Superfamily: nitrilase (carbon-nitrogen
C;Keywords: hydrolase
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    ATSP:T10D17.110; nit3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LGDVARAKLYFDXVGHYSRPDVLHLTVNEHPKKPVTFI 327
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                                          UNIPARC:UPI000000BDB6;
                                                                                                                                                                                                                  G.R.
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Pred. No. 7.1e-37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  D.; Pigazzi, M.; Valle,
atabase, April 2000

    Arabidopsis thaliana

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                                                                                                                                                                                                                                                                                                           GB/EMBL/DDBJ
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                                                          EMBL: U09959;
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                                                                                                                                                                            nitrilase
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                                                            PIDN: AAA19627.1
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                                                                                                                                                                                                                                                                                                                                                                     cluster
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C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
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A;Title: Differential regulation of an auxin-producing
A;Reference number: Z24515; MUID:8022831; PMID:8022831
A;Accession: T52262
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-339 CBAR>
A;Residues: 1-339 CBAR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Species: Arabidopsis to C; Date: 20-Oct-2000 #seq C; Accession: T52262 R; Bartel, B.; Fink, G.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nitrilase (EC 3.5.5.1) 2 [imported] - Arabidopsis thaliana (;Species: Arabidopsis thaliana (mouse-ear cress) C:Date: 20-Oct-2000 #text_C
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A;Experimental source: cultivar Columbia
C;Genetics:
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A;Introns: 37/2; 97/1; 195/1; 289/1
A;Introns: 37/2; 97/1; 195/1; 289/1
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
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Best Local S
Matches 112
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                                                                  111
                171
                                       129
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                                                                                                                                               Similarity
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VRVTIVQSSTVYNDTPATLDKAEKFIVEAASKGAKLVLFPEAFIGGYPRGFRFGLAVGVH
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GDTIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNE 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---CTDDEKHALLLAGGGHSRIJGÞDGGDLVAPLAENEEGILYANLDÞGVRILAKMAADÞ 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VGHYSKPDIFNLTVNEHPKKPV 331
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                                                                SQWFIGDNGDTIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTK 170
                                                                                                                     QF------vrQyHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYI 110
                                      YALYAQNEEIHCA-----
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                                                                                                                                                                                                       27.7%;
nilarity 33.1%;
Conservative 60
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Pred. No. 9e-
                                                                                                                                                                                                          60;
                                                                                                                                                                                                                       Score 489.5;
Pred. No. 1.1
                 -AWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCA
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                                                                                                                                                                                                            Mismatches 111;
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, 9e-37;
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probable nitrilase (EC 3.5.5.1) ZK1058.6 - Caenorhabditis elegans C; Species: Caenorhabditis elegans C; Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 3: C; Accession: T27679 R. Mortimore, B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Residues: 1-305 <WIL>
A; Cross-references: UNIPROT:(
A; Experimental source: clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: DNA
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A; Accession: T27679
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A;Introns: 71/2; 178/1; 205/2
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
C;Keywords: hydrolase
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Gene: CESP: ZK1058.6
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nitrilase-like protein [imported] - rice C;Species: Oryza sativa (rice) C;Abte: 20-Oct-2000 #sequence_revision 20-Oct-2000 C;Abte: 20-Oct-2000 #sequence_revision 20-Oct-2000 C;Abccession: T52266 R;Chiba, R.; Dohmoto, M.; Yamaguchi, K. submitted to the EMBL Data Library, May 1999 A;Description: Oryza sativa, a gene for nitrilase-l A;Reference number: Z26008
                                                                                                                                            RESULT
T52266
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Best Local S
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PDVFQLKVNENSQSTVVK
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1999 nitrilase-like

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A;Accession: T52266
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-362 <CHI>
A;Residues: 1-362 <CHI>
A;Cross-references: UNIPROT:Q9SXX6; UNIPARC:UPI000009C92A; EMBL:AB027054; PIDN:BAA77679.
A;Experimental source: cultivar Nipponbare
C;GenetLos:
A;Gene: ONIT4
C;Superfamily: nitrilase (carbon-nitrogen hydrolase)
Search completed: April 27, 2006, 01:01:07 Job time: 25.664 secs
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PubMeda=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;

Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

A Robertson D.E., Chaplin J.A., Miller M., Weiner D.P., Wong K.

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29; Mismatches
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AC Q50U11;
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IT 3-SEP-2005 (TREMBLrel. 31, Last sequence update)
DT 13-SEP-2005 (TREMBLrel. 31, Last annotation update)
DT 13-SEP-2005 (TREMBLRel. 31, Last annotation update)
DT 13-SEP-2005 (TREMBLRel. 31, Last annotation update)
DRINAMMSS-PSY 0007;
GN QRENAMMSS-PSY 0007;
OS PSeudomonas Syringse pv. syringse B72Ba.
OC Bacteria; Proteobacteria; Gammaproteobacteria; Pseudomonadales;
OC Pseudomonadaceae; Pseudomonas.
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RX Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
RA Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
RA Mathur E., Kretz P.L., Burk M.J., Short J.M.;
RT "Exploring nitrilase sequence space for enantioselective catalysis.";
RT Appl. Environ. Microbiol. 70:2429-2436(2004).
RR Appl. Environ. Microbiol. 70:2429-2436(2004).
RR GO; GO:00168762; F:aliphatic nitrilase activity; IEA.
RG; GO:0016876; F:aliphatic nitrilase activity; IEA.
RG; GO:0016870; F:hydrolase activity, acting on carbon-nitrog. .; IEA.
RG; GO:0006807; F:nitrogen compound metabolism; IEA.
RR InterPro; IPR000132; N/CN_hydratase.
RICHERY ROSITE; PS00263; CN_HYDROLASE; 1.
RROSITE; PS00920; NITRIL_CHT 1; 1.
RROSITE; PS00920; NITRIL_CHT 2; 1.
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Matches 218
                                                                                                                                   OrderedLocusNames=PSPTO0189;
Pseudomonas syringae (pv. tomato).
Bacteria; Proteobacteria; Gammaproteobacteria; Pseudomonadales;
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90 PRELIMINARY; PRT; 347 AA.
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submitted (MAY-2005) to the EMBL/GenBank/DDBJ di
EMBL; CP000075; ARAY35081.1; -; Genomic DNA.
GO; GO:0018762; F:aliphatic nitrilase activity;
GO; GO:0016787; F:hydrolase activity; IEA.
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Chain P., Larimer F., DiBartolo G., Copeland A., Lykidis A., Trong S.
Nolan M., Goltsman E., Thiel J., Malfatti S., Lapidus A., Detter J.C.
Land M., Richardson P.M., Kyrpides N.C., Ivanova N.;
"Comparison of two complete genome sequences of Pseudomonas syringae
pv. syringae B728a and pv. tomato DC3000.";
Proc. Natl. Acad. Sci. U.S.A. 0:0-0(2005).
                        NUCLEOTIDE SEQUENCE STRAIN=DC3000;
                                                                                                                                                                                                           Nitrilase, putative.
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Submitted
                                                                                                                  Pseudomonadaceae;
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  MEDLINE=22834015;
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PubMed=12928499; DOI=10.1073/pnas.1731982100;
                                                                                                                      Pseudomonas
                                                 [LARGE
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                                               SCALE GENOMIC DNA)
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7; Mismatches 60;
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WA Gwinn M.L., Dodson R.J., DeBoy R.T., Durkin A.S., Kolonay J.F.,

WA Madupu R., Daugherty S.C., Brinkac L.M., Beanan M.J., Haft D.H.,

WA Nelson W.C., Davidsen T.M., Zafar N., Zhou L., Liu J., Yuan Q.,

WA Khouri H.M., Fedorova N.B., Tran B., Russell D., Berry K.J.,

WA Utterback T.R., Van Aken S.E., Feldblyum T.V., D'Ascenzo M.,

Utterback T.R., Van Aken S.E., Feldblyum T.V., D'Ascenzo M.,

WA Deng W.-L., Ramos A.R., Alfano J.R., Cartinhour S., Chatterjee A.K.,

WA Delaney T.P., Lazarowitz S.G., Martin G.B., Schneider D.J., Tang X.,

WA Bender C.L., White O., Fraser C.M., Collmer A.;

WThe complete genome sequence of the Arabidopsis and tomato pathogen

WE TOO. Natl. Acad. Sci. U.S.A. 100:10181-10186 (2003).

WE MBL; AE016853; AAO53742.1; -; Genomic_DNA.
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NUCLEOTIDE SEQUENCE.
PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;
Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Won McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Ke Mathur B., Kretz P.L., Burk M.J., Short J.M.;
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05-JUL-2004 (TrEMBLrel.
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Nitrilase (EC 3.5.5.7).
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Best Local Sim
Matches 212;
Dubmed=1506684; DOI=10.1128/AEM.70.4.2429-2436.2004;

Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

Chi E., Richardson T., Millan A., Miller M., Weiner D.P., Wong K.,

A. McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,

Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective catalysis."

"Exploring nitrilase sequence space for enantioselective catalysis."

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"Appl. Environ. Microbiol. 70:2429-2436(2004).

R EMBL; AY487512; AAR97459.1; -; Genomic DNA.

R EMBL; AY487512; AAR97459.1; -; Genomic DNA.

R GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. . .;

RGO; GO:0016807; P:nitrogen compound metabolism; IEA.

InterPro; IPR003010; Ntlse/CNhydtse.

R Pfam; PF00795; CN_hydrolase; 1.

R PROSITE; PS50263; CN_HYDROLASE; 1.
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Appl. Environ. Microbiol. 70:2429-2436(2004).

EMBL; AY487492; AAR97439.1; -; Genomic_DNA.
GO; GO:0018762; F:aliphatic nitrilase activity; IEA.
GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. ..; II
GO; GO:0016807; F:nitrogen compound metabolism; IEA.
InterPro; IPR000132; N/CN hydratase.
InterPro; IPR003010; Ntlse/CNhydtse.
Pfam; PF00795; CN_hydrolase; 1.
PROSITE; PS0020; NtTRIL_CHT_1; 1.
PROSITE; PS0020; NtTRIL_CHT_1; 1.
PROSITE; PS00921; NITRIL_CHT_2; UNKNOWN_1.
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Best Local &
                                                                                                               x PubMed=1506684; DOI=10.1128/AEM.70.4.2429-2436.2004;
A Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M. Chi E., Richardson T., Milar A., Miller M., Weiner D.P., Wong A. Chi E., Richardson T., Milar A., Miller M., Weiner D.P., Wong A. McQuaid J., Farwell B., Preseton L.A., Tan X., Snead M.A., Kel Mathur E., Kretz P.L., Burk M.J., Short J.M.;

"Exploring nitrilase sequence space for enantioselective cata "Exploring nitrilase sequence space for enantioselective cata Appl. Environ. Microbiol. 70:2429-2436(2004).

L. Appl. Environ. Microbiol. 70:2429-2436(2004).

EMBL; AY487427; AAR97374.1; -; Genomic_DNA.
R. GO; GO:0016807; F:aliphatic nitrilase activity; IEA.
R. GO; GO:0016807; P:nitrogen compound metabolism; IEA.
R. GO; GO:0016807; P:nitrogen compound metabolism; IEA.
R. InterPro; IPR003010; N/CN_hydratase.
R. InterPro; IPR003010; Nlse/CNhydtse.
R. Pfam; PF00795; CN_hydrolase; 1.
R. PROSITE; PS00920; NTTRIL_CHT_2; 1.
R. PROSITE; PS00921; NITRIL_CHT_2; 1.
R. PROSITE; PS00921; NITRIL_CHT_2; 1.
R. Hydrolase.
R. FRANNER 145 AB. 27247 MM. SERANACEFRINDSFIN CPC64.
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PROSITE; PS00921; NITRIL_CHT_2; UNKNOWN_1.
Hydrolase.
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Pred. No. 2.
     Score 1081; DI
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Who bubmed=15066881; DOI=10.1128/AEM.70.4.2439-2436.2004;
AR Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
AR McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
AR Mathur E., Kretz P.L., Burk M.J., Short J.M.;
"Exploring nitrilase sequence space for enantioselective catalysis.";
Pappl Environ. Microbiol. 70:2429-2436(2004).
PAPPL Environ. Microbiol. 70:2429-2436(2004).
PREMBI; AY487559; AAR97506.1; -; Genomic DNA.
CO; GO:0016810; F:aliphatic nitrilase activity; IEA.
GO; GO:0016810; F:nydrolase activity, acting on carbon-nitrog. .; IEA.
GO; GO:001687; F:nitrogen compound metabolism; IEA.
PROGO:0006807; F:nitrogen compound metabolism; IEA.
InterPro; IPR000132; N/CN hydratase.
InterPro; IPR00313; N/CN hydratase.
InterPro; IPR00313; N/CN hydratase.
InterPro; IPR00313; N/CN hydratase.
PROSITE; PS00926; CN HYDROLASE; 1.
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PROSITE; PS00921; NITRIL CHT 2; 1.
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Nitrilase (EC 3.5.5.7).
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                         IGARRKLKPTFVERTLFGEGDGSSLAVFE-TSVGRLGGLCCWEHLQPLTKYALYAQNEEI 180
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Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,
Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,
AM McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,
AM Mathur E., Kretz P.L., Burk M.J., Short J.M.;
"Exploring nitrilase sequence space for enantioselective catalysis.";
"Exploring nitrilase sequence space for enantioselective catalysis.";
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                                                                              HAGGGFAVIYGPDGAPLAAPLPPDKEGLLYADIDLGMISVAKAAADPAGHYARPDVTRLL
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Pred. No. 4.7e-82;
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AC Q6RWF6;
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RN NUCLEOTIDE SEQUENCE.

RA ROBERTSON D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

RA Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden M.,

RA Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K.,

RA McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.,

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RA McQuaid J., Farwell B., Preston L.A., Snead M.A., Keller M.,

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RA McQuaid J., Farwell B., Preston L.A., Tan X., Short I.A., Snead M.A., Keller M., Short I.A.,

RA McQuaid J., Farwell B., Preston L.A., Tan X., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short I.A., Short
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05-JUL-2004 (TrEMBLrel. 2
05-JUL-2004 (TrEMBLrel. 2
Nitrilase (EC 3.5.5.7).
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Pred. No. 8.5e-82;
6; Mismatches 66
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                                     PRT;
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RESULT 13
Q6RWF0_9ZZZZ
ID Q6RWF0_9ZZZZ PRELIMINARY;
AC Q6RWF0;
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x PubMed=1506684; DOI=10.1128/AEM.70.4.2429-2436.2004;
A Robertson D.B., Chaplin J.A., DeSantis G., Podar M., Madden M.,
A McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.
A McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M.
A Mathur E., Kretz P.L., Burk M.J., Short J.M.;
TEXPLORING nitrilase sequence space for enantioselective catalysis
T. Appl. Environ. Microbiol. 70:2429-2436(2004).
Appl. Environ. Microbiol. 70:2429-2436(2004).
EMBL, Av407546; AAR07493.1; -; Genomic_DNA.
RGO; GO:0018762; Fraliphatic nitrilase activity; IEA.
RGO; GO:0016810; Fr.hydrolase activity, acting on carbon-nitrog. ..
RGO; GO:0016810; Fr.hydrolase activity, acting on carbon-nitrog.
RGO; GO:0006807; P:nitrogen compound metabolism; IEA.
RR GO; GO:00132; N/CN_hydratase.
InterPro; IPR003013; N/CN_hydratase.
InterPro; IPR003013; N/CN_Hydrolase; 1.
RR PROSITE; PS50263; CN Hydrolase; 1.
RR PROSITE; PS50263; CN HYDROLASE; 1.
RR PROSITE; PS00920; NITRIL_CHT_1; 1.
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Nitrilase (EC 3.5.5.7).

ORFWARMES=BD5217;

uncultured organism.

unclassified; environmental such TaxID=155900;
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05-JUL-2004 (TrE
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Nitrilase (EC 3.)
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NUCLEOTIDE SEQUENCE.
PubMed=15066841; DOI=10.1128/AEM.70.4.2429-2436.2004;
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(EC 3.5.5.7).
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Pred. No. 1.2e-81;
6; Mismatches 73;
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RESULT 14

Q6RWS3 9ZZZZ

ID Q6RWS3 9

AC Q6RWS3 9

DT 05-JUL-2

DT 05-JUL-2

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Matches 195
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"Exploring nitrilase sequence space for enantioselective cata Papel. Environ. Microbiol. 70:2429-2436 (2004).

EMBL, Ay487552; AAR97499.1; -; Genomic DNA.

REMBL, Ay487552; Faliphatic nitrilase activity; IEA.

RGO; GO:0018762; F:aliphatic nitrilase activity; IEA.

RGO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog GO; GO:0006807; P:nitrogen compound metabolism; IEA.

RGO; GO:0006807; P:nitroglase activity acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity.

RGO; GO:0007; P:nitroglase activity acting on carbon-nitrog RGO; GO:0007; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0007; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting on carbon-nitrog RGO; GO:0006807; P:nitroglase activity. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J. Acting M.J.
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PubMed=1506681; DOI=10.1128/AEM.70.4.2429-2436.2004; Adden M., Robertson D.B., Chaplin J.A., DeSantis G., Podar M., Madden M., Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Wong K., McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Keller M., Mathur E., Kretz P.L., Burk M.J., Short J.M., "Bayloring nitrilase sequence space for enantioselective catalysis." hppl. Environ. Microbiol. 70:2429-2436(2004). EMBL; AY487429; AR897376.1; -; Genomic DNA.
GO; GO:0018762; F:aliphatic nitrilase activity; IEA.
GO; GO:0016810; F:hydrolase activity, acting on carbon-nitrog. . .; GO; GO:0006807; P:nitrogen compound metabolism; IEA.
                                                                                                                                                                                                                                                                                                                                                            uncultured organism unclassified; environments
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Q6RWS3;
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RA MACHULE E., RICHAR
ROG, GO:0016815
DR GO; GO:0016807
DR INTERPO; IPRO
DR GO; GO:0016807
DR INTERPO; IPRO
DR PFAM; PF00795;
DR PROSITE; PS009
DR PROSITE; PS009
DR PROSITE; PS009
DR PROSITE; PS009
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DR PROSITE; PS009
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PubMed=1506841; DOI=10.1128/AEM.70.4.2429-2436.2004;
Robertson D.E., Chaplin J.A., DeSantis G., Podar M., Madden I.
Chi E., Richardson T., Milan A., Miller M., Weiner D.P., Won
M. McQuaid J., Farwell B., Preston L.A., Tan X., Snead M.A., Ke
Mathur E., Kretz P.L., Burk M.J., Short J.M.;
"Exploring nitrilase sequence space for enantioselective cat
Appl. Environ. Microbiol. 70:2429-2436(2004).

R. EMBL; AY487558; AAR97505.1; -; Genomic_DNA.
R. GO; GO:0018762; F:aliphatic nitrilase activity; IEA.
R. GO; GO:0016810; F:hydrolase activity, acting on carbon-nitro
R. GO:00106810; F:hydrolase activity, acting on carbon-nitro
R. GO:0006807; P:nitrogen compound metabolism; IEA.
R. InterPro; IPR003112; N/CN hydratase.
InterPro; IPR003101; Nt1se/CNhydtse.
R. Pfam; PF00795; CN hydrolase; 1.
R. PROSITE; PS00263; CN HYDROLASE; 1.
R. PROSITE; PS00201; NITRIL_CHT_1; 1.
R. PROSITE; PS00921; NITRIL_CHT_2; 1.
R. PROSITE; PS00921; NITRIL_CHT_2; 1.
R. PROSITE; PS00921; NITRIL_CHT_2; 1.
R. PROSITE; S00921; NITRIL_CHT_2; 1.
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05-JUL-2004 (TrEMBLrel. 27

05-JUL-2004 (TrEMBLrel. 2

05-JUL-2004 (TrEMBLrel. 2
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SEQUENCE
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InterPro; IPR003010; Ntlse/CMhydtse.
Pfam; PF00795; CN_hydrolase; 1.
PROSITE; PS50263; CN_HYDROLASE; 1.
PROSITE; PS00920; NITRIL_CHT_1; 1.
PROSITE; PS00921; NITRIL_CHT_2; 1.
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carbon-nitrog. .
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Query Match

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                                                                                                                                                                                                                                                                                                                 439378781 residues
                                                                                                                                                                                                                                                                                                                                                                                            ......DLRPYALGKASETGAQLEEI 337
                                                                                                                                                                                                                                                                                    2443163
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	ហ	4	ω	2	<u>_</u>	Result
1136	1136	1136	1139	1139	1139	1139	1139	1339	1339	1339	1339	1339	1339	1339	1339	1339	1339	1761	1761	1761	1761	1761	1765	Score
64.4		.4	•			64.5	٠		٠	•	•	•			75.9	٠	5	99.8	9.	9	9	99.8	100.0	Query Match I
332	332	332	333	333	333	333	333	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337	Length
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ADG93675	ADH35974	ADC23873	ADI64545	ADI62424	ADG93827	ADH36126	ADC24025	ADI64301	ADI64311	ADI62190	ADI62180	ADG93593	ADG93583	ADH35892	ADH35882	ADC23781	ADC23791	ADI64639	ADI62518	ADG93919	ADH36220	ADC24119	AAE05489	ID
Adg93675 Nitrilase	Adh35974 Chemical	Adc23873 Protein s	Adi64545 Nitrilase	Adi62424 Nitrilase	Adg93827 Nitrilase	Adh36126 Chemical	Adc24025 Protein s	Adi64301 Nitrilase	Adi64311 Nitrilase	Adi62190 Nitrilase	Adi62180 Nitrilase	Adg93593 Nitrilase	Adg93583 Nitrilase	Adh35892 Chemical	Adh35882 Chemical	Adc23781 Protein s	Adc23791 Protein s	Adi64639 Nitrilase	Adi62518 Nitrilase	Adg93919 Nitrilase	Adh36220 Chemical	Adc24119 Protein s	rila	Description

The present invention relates to methods for producing an enantiomerically pure alpha-substituted carboxylic acid. The method involves contacting an aldehyde or ketone with a cyanide containing compound and an ammonia-containing compound or an ammonium salt or and stereoselectively hydrolysing the resulting amino nitrile or cyanohydrin intermediate with a nitrilase or a polypeptide having nitrilase activity. The present sequence is a nitrilase protein #2

amine,

Producing alpha-substituted carboxylic acid enantiomers by contacting aldehyde or ketone with cyanide, ammonia compound or its salt or amine and hydrolyzing the resulting amino nitrile or cyanohydrin with

Claim 30; Page 86-87; 87pp; English.

45	44	43	42	41	40	39	38	37	36	35 5	ω 4	ω ω	32 2	31	30	29	28	27	26	2.5
1042	1042	1042	1042	1051	1051	1051	1051	1051	1081	1081	1081	1081	1081	1091	1091	1091	1091	1091	1136	1136
59.0	59.0	59.0	59.0	59.5	59.5	59.5	59.5	59.5	61.2	61.2	61.2	61.2	61.2	61.8	61.8	61.8	61.8	61.8	64.4	64.4
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ADI62344	ADG93747	ADH36046	ADC23945	ADI64259	ADI62138	ADG93541	ADH35840	ADC23739	ADI64587	ADI62466	ADG93868	ADH36168	ADC24067	ADI64559	ADI62438	ADG93841	ADH36140	ADC24039	ADI64393	AD162272
Adi62344	Adg93747	Adh36046	Adc23945	Adi64259	Adi62138	Adg93541	Adh35840	Adc23739	Adi64587	Ad162466	Adg93868	Adh36168	Adc24067	Ad164559	Adi62438	Adg93841	Adh36140	Adc24039	Adi64393	AG1622/2
Nitrilase	Nitrilase	Chemical	Protein s	Nitrilase	Nitrilase	Nitrilase	Chemical	Protein s	Nitrilase	Nitrilase	Nitrilase	Chemical	Protein s	Nitrilase	Nitrilase	Nitrilase	Chemical	Protein s	Nitrilase	NICILIASE

ALIGNMENTS

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RESULT 1
AABO5489
ID AABO5489
ID AABO5489
AC AABO
XX AABO
XX Nitz
XX Nitz
XX Nitz
XX Unid
XX Unid
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Madden M, Weiner DP,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-DEC-1999; 99US-0173609P.
07-DEC-2000; 2000US-0254414P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-DEC-2000; 2000WO-US035555
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nitrilase; enantiomer; alpha-substituted carboxylic acid; stereoselective; hydrolysis; amino nitrile; cyanohydrin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nitrilase protein #2.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chaplin JA;
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RESULT 2
ADC24119
ID ADC2419
ID ADC2
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AC ADC2
XX ADC2
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Best Local
                                                                                                                                                                                                                                                                                          Madden M,
Short JM,
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  This
                                             Claim 40; SEQ ID NO
                                                                                                               Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and
                                                                                                                                                                                                                      N-PSDB; ADC24118.
                                                                                                                                                                                                                                             WPI; 2003-201417/19.
                                                                                                                                                                                                                                                                                                                                                                 (DIVE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                   21-JUN-2001; 2001US-0300189P.
30-JUL-2001; 2001US-0309006P.
22-JAN-2002; 2002US-0351336P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-JAN-2003.
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  invention relates to nitrilases and the nucleic acids that encode
                                                                                               additive
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                                                                                                                                                                                                                                                                                        Desantis G,
Burk M;
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                                             386;
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                                          560pp; English.
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Pred. No. 7.7e-188;
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                                                                                                                                                                                                                                                                                                                 Weiner
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RESULT 3
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Best Local Similarity
Matches 336; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and alighatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microorganisms, that have improved activity and stability at increased pH and temperature. They are also inexpensive, efficient catalysts, have broad substrate specificity and are capable of chiral differentiation. This polypeptide is a protein sequence that exhibits nitrilase activity of the invention.
                        Weiner D,
Mcquaid J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 337 AA;
                                                                                                                                                            27-NOV-2003
                                                                                                                                                                                                                                                          chemical process monitoring; biochemical process monitoring; cyanide;
                                                                                                                                                                                                                                                                                       Chemical process monitoring-related nitrilase protein sequence SeqID386.
                                                                                                                                                                                                                                                                                                                     11-MAR-2004
                                                                                                                                                                                                                                                                                                                                                  ADH36220;
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                                                                                                 15-MAY-2002; 2002US-0380737P
                                                                                                                             15-MAY-2003; 2003WO-US015639
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                        Chaplin JA,
Stege J;
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                                                                                                                                                                                                                                               system; enzyme.
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Pred. No. 2.2e-187;
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WPI; 2004-142708/14

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RESULT 4
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Best Local Simi
Matches 336;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            comprising cyanide (or a material that can be converted to a cyanide) that generates as a reaction product cyanide or a material that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a nitrilase protein which may be used in the method of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Monitoring a chemical or biochemical process comprises providing a reactant comprising a cyanide or a material that can be converted to cyanide or a reactant that generates a cyanide or a material that can converted to cyanide.
 15-MAY-2002; 2002US-00146772
                                                                                                                 Unidentified
                                                                                                                                          nitrilase; nitrile; enantioselective tra
                                                                                                                                                                                    Nitrilase
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  biochemical processes. The method involves providing a recomprising cyanide (or a material that can be converted
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                            15-MAY-2003; 2003WO-US015712
                                                                                    WO2003097810-A2
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                                                                                                                                                                                                                                                                                                                                                                 RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLEEI 337
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                                                                                                                                                                                 enzyme amino acid sequence SeqID386
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99.7%;
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Pred. No. 2.2e
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Best Local Sim
Matches 336;
                                                                                                   Atorvastatin; (R)-ethyl 4-cyano-3-hydroxybutyrate; (R)-ethyl 4-cyano-3-hydroxybutyric acid; epichlorohydrin; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This invention is related to a novel isolated or recombinant nucleic acid encoding a protein having nitrilase activity. Nitrilase's are capable of converting nitrile's directly to carboxylic acids and have great potential for use in industrial chemical processes. The isolated nitrilase proteins of the invention have increased activity and stability at increased pH and temperature when compared to those conventionally used. In addition, the nucleic acid of the invention is useful for
                                                                                                                                                                                                                                                                                                                                          Nitrilase polypeptide #193.
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The present invention relates to a method for preparating an atorvastatin contemediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate acid). The method comprises optionally converting cepichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-cepic converting 4-cyano-3-hydroxybutyrate to ethyl-4-cyano-3-hydroxybutyric converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric converting 4-cyano-3-hydroxybutyric converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The control of the converting this converting 4-cyano-3-hydroxybutyrate of processes, and "multi-pot" processes, cell lysate process, "one pot" coresses, and "multi-pot" processes using a variety of parameters. Converting the hyperlipidaemia, including hypercholesterolaemia, mixed converting and homozygous familial hypercholesterolaemia, mixed converting and homozygous familial hypercholesterolaemia. The present converting an and homozygous familial hypercholesterolaemia. The present converting an and homozygous familial hypercholesterolaemia.
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                                                                                                                                                                                                                                                                               AWAMQFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNGD
                                                                                                                                                                                                                                                                                                                            MKEAIKVACVQAAPIYMDLKATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSP
                                                                                                                                                                                                                                                                                                                                               MKEAIKVACVQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSP
                                                                                                                                                   HCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKH
                                                                                                                                                                                                                             TIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEI
                                                                                                                                HCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKH
                                                                                                                                                                                                                                                            AWAMQFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNGD
                   RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLEEI
                                                                ALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKMAADPAGHYSRPDIT
                                                                                   ALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKWAADPAGHYSRPDIT
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                                                                                                                                                                                                                                                                                                                                                                                              Conservative
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2002US-0392944P.
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Pred. No. 2.2e-
1; Mismatches
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.2e-187;
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RESULT 6 ADI64639

유정

1 MKEAIKVACYQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSP

MKEAIKVACVQAAPIYMDLKATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSP

60

Query Match Best Local S Matches 336

Similarity

99.8%;

Score 1761; DB 8; Pred. No. 2.2e-187; 1; Mismatches 0;

Length 337;

0

Gaps

0

Conservative

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The invention describes an isolated or recombinant polypeptide (I) comprising amino acids having a sequence at least 50 % identical to a CC sequence (S1) available in electronic form (EC) from the following web CC site ffp.seqdata.uspto.gov/sequence.html?Doc1D=200404195, or its CC variants, having one or more mutations at residue 55 Lys, Gly or Glu, at CC residue 60 glutamic acid, at residue 11 Ser, their combinations or CC fragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3-CC hydroxybutyric acid, hydrolysing a nitrile to a carboxylic acid; hydrolysing a nitrile to a carboxylic acid; cc chiral alpha-hydroxy acid molecule or a chiral amino acid molecule; CC producing an (S)-ethyl 4-cyano-3-hydroxybutyric acid; producing an (CC derivative or an (R)-penyl lactic acid derivative or an (R)-phenyl lactic acid derivative or an (R)-phenyl lactic acid derivative; modifying a molecule; and for identifying a modified compound. The inventive method is useful for monitoring or determining % enantiomeric excess or % diasteromeric compound in the production of food additives and drug intermediates. This is the amino acid sequence of a nitrilase of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-DEC-2000;
28-DEC-2000;
21-JUN-2001;
30-JUL-2001;
22-JAN-2002;
15-MAY-2002;
09-SEP-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (R)-ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis; carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile moiety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S)-ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-mandelic acid; (S)-phenyl lactic acid derivative; % enantiomeric excess; (R)-phenyl lactic acid derivative; % enantiomeric excess;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unidentified
                                                                                                                                                                                                                                                                                                                                                               Novel isolated or recombinant polypeptide useful in production of food additives.
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2000US-00751299.
2001US-03001899.
2001US-03001899.
2001US-03006P.
2002US-0351336P.
2002US-00146772.
2002US-00241742.
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        This invention relates to nitrilases and the nucleic acids that encode these enzymes thereof. Specifically, it refers to polypeptides that exhibit nitrilase activity, i.e. the ability to directly hydrolyse nitriles or cyanohyrdins into their corresponding carboxylic acids and ammonia. Nitrilases have commercial utility as biocatalysts for use in the synthesis of enantiomerically pure aromatic and aliphatic amino acids, as well as hydroxy acids, which are important for the development of chiral medicines. Furthermore, the present invention describes nitrilases, isolated from mesophilic microganisms, that have improved
                                                                                                                                                                                                                                                                            Madden M,
Short JM,
                                                                                                                                                                               Novel nitrilase polypeptide, useful for making (R) - or (S) -ethyl-4-cyano-3-hydroxybutyric acid or (R) - or (S)-mandelic acid or (S) - or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and
                                                                                                                                                                                                                                      WPI; 2003-201417/19
N-PSDB; ADC23790.
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30-JUL-2001; 2001US-0309006P
22-JAN-2002; 2002US-0351336P
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food ac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 enantiomer; chiral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              enzyme; nitrilase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     standard;
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                                                                                                                                             SEQ ID NO
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Burk M;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nitrile; cyanohyrdin; ammonia; biocatalyst;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   medicine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein;
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                                                                                                                                            560pp; English.
                                                                                                                                                                                                                                                                                       Chaplin
increased pH and
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ARESULT 8
ADC23761
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Best Local S
Matches 252
                                                                                                                                                                                                                                                                                                                     21-JUN-2001;
30-JUL-2001;
22-JAN-2002;
                Novel nitrilase polypeptide, useful for making (R)- or (S)-ethyl-4-cyano-3-hydroxybutyric acid or (R)- or (S)-mandelic acid or (S)- or (R)-phenyl lactic acid derivative and for producing pharmaceutical composition, and
                                                                                                                WPI; 2003-201417/19
N-PSDB; ADC23780.
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                                                                                                                                                                                   Short
                                                                                                                                                                                                           Madden
                                                                                                                                                                                                                                                                                                                                                                                                                                                             03-JAN-2003
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         enzyme; nitrilase;
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                                                                                                                                                                                                                                                      (DIVE-)
                                                                                                                                                                                                                                                                                                                                                                                                             15-MAY-2002; 2002WO-US015983
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 enantiomer; chiral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein sequence (SeqID 48)
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Pred. No. 3.3e-140;
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these enzymes thereof. Speciexhibit nitrilase activity,

This invention Claim 40; SEQ ID NO

relates

to nitrilages and the nucleic acids that encode specifically, it refers to polypeptides that vity, i.e. the ability to directly hydrolyse

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chemical process monitoring; biochemical high throughput system; enzyme.

WO2003098187-A2

Chemical

process monitoring-related nitrilase protein sequence SeqID58

process monitoring; cyanide;

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RESULT 10
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This invention relates to a novel method of monitoring chemical or biochemical processes. The method involves providing a reactant comprising cyanide (or a material that can be converted to a cyanide) comprising cyanide and measuring that can be converted to cyanide and measuring the concentration of produced cyanide. The method is useful for monitoring a chemical or biochemical process. The method is effective for high throughput systems and is sufficiently sensitive to detect a small amount of product. The present sequence is that of a nitrilase protein which may be used in the method of the
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Mcquaid J,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 337
                                                                                                                                                 11-MAR-2004
                                                                                                                                                                                                      ADH35892 standard; protein;
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                                                                                                                                                                                                                                                                                                                            SLLQAGGGYSRIIGÞÞGSÞLARÞLGENEEGILYATLÞÞAARÍYAKTAAÞÞÁGHYSRÞÐVT
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                                                                                                                                                                                                                                                                      RLLINRSANOPVVEVGREI----PASAQGFEVE 329
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Stege J;
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 nitrilase; nitrile; carboxylic acid; chemical
                         Nitrilase enzyme amino acid sequence SeqID48
                                                      11-MAR-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 337 AA;
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                                                                                                         standard;
                                                                                                                                                                                                RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLE 335
                                                                                                                                                                                                                               SLLQAGGGYSRIIGPDGSDLARPLGENEEGILYATLDPAARIYAKTAADPAGHYSRPDVT
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75.2%;
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Pred. No. 3.3e-140;
""matches 47;
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process;
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pH; temperature;
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RESULT 12
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AC ADG9

ADG93593

standard;

protein;

ADG93593; 11-MAR-2004

(first entry)

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                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New isolated or recombinant nucleic acid nitrilase activity, useful for screening
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 44; SEQ ID NO 48; 295pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  nitrilase activity, useful
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09-SEP-2002;
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                 RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLE 335
                                                     SLLQAGGGYSRIIGPDGSDLARPLGENEEGILYATLDPAARIYAKTAADPAGHYSRPDVT
                                                                                                          HFAAWPSFSIYRQATEVLGPEVNVAASRIYAVEGQCFVLASCALVSPEMIEMLCTDESKH
                                                                                                                          HCAAWPSFSLYPNAAKALGFDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKH
                                                                                                                                                                                         TIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEI
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RLLINRSANOPVVEVGREI----PASAOGFEVE
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75.2%;
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Pred. No. 3.3e-140;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nitrilase enzyme amino acid sequence SeqID58
                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New isolated or recombinant nucleic acid nitrilase activity, useful for screening
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09-SEP-2002;
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                                                                                                                                                                                                                                                                                                                                                                                                    nitrilase enzyme of the invention.
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                                                                                                      HFAAWPSFSIYRQATEVLGPEVNVAASRIYAVEGQCFVLASCALVSPEMIEMLCTDESKH
                                                                                                                                                                           TIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEI
                                                                                                                                                                                                                                                                   ALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKWAADPAGHYSRPDIT
                                                                                                                      TAGLRRKLKPTHVERTLFGEGDGSSLSTFDTPLGVLGGLCCWEHLQPLSKYALYAQNEEI
                                                                                                                                                                                                                AWGMQFVRRYHENSLVLDSPQAKRISEAAQRAGIYVALGYSERVSGTLYMGQWLIDDKGE
                                                                                                                                                                                                                                       AMAMOFVROYHENSLELDGPOAKRISDAAKRLGIMVTLGMSERVGGTLYISOWFIGDNGD
                         RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLE
                                                    SLLQAGGGYSRIIGPDGSDLARPLGENEEGILYATLDPAARIYAKTAADPAGHYSRPDVT
RLLINRSANOPVVEVGREI-----PASAOGFEVE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                carboxylic acid; chemical process; pH; temperature;
                                                                                                                                                                                                                                                                                                                                    75.9%; Score 1339; DB 8; 75.2%; Pred. No. 3.3e-140;
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                                                                                                                                                                                                                                                                                                                   conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxyglutaronitrile or equivalent to 4-cyano-3-hydroxybutyric acid with a polypeptide having nitrilase activity, hydroxybutyric to ethyl-4-cyano-3-hydroxybutyric converting 4-cyano-3-hydroxybutyric to ethyl-4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters. Atorvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia, mixed dyslipidaemia and homozygous familial hypercholesterolaemia. The prese sequence represents a nitrilase polypeptide obtained from an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (R)-ethyl 4-cyano-3-hydroxybutyric acid; epichlorohydrin; 3-hydroxyglutaronitrile; 3-hydroxyglutaronitrile; 4-cyano-3-hydroxybutyric acid; ethyl-4-cyano-3-hydroxybutyric acid; mixed hyperlipidaemia; homozygous familial hypercholesterolaemia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Preparation of atorvastatin comprises catalytic conversion of 3-hydroxyglutaronitrile by polypeptide with nitrilase activity, converting obtained 4-cyano-3-hydroxybutyric acid to ethyl-4-cyano-3-hydroxybutyric acid and forming atorvastatin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nitrilase polypeptide #24.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present invention relates to a method for preparating an atorvastatin intermediate known as (R) ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyric acid). The method comprises optionally converting epichlorohydrin or equivalent to 3-hydroxyglutaronitrile, catalytic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Unidentified
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                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 41; SEQ ID NO 48; 253pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2004-090821/09.
N-PSDB; ADI62179.
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28-JUN-2002;
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                   TIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEI
                                                                                     AWAMOFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNGD
                                                                  AWGWQFVRRYHENSIVIDSPQAKRISEAAQRAGIYVALGYSERVSGTLYMGQWLIDDKGE
                                                                                                                                    VKEAIKVACVQAAPVFLDLDATVDKTVALIEEAARNGARLIAFPETWIPGYPWFLWLDSP
TAGLERKLKPTHVERTLFGEGDGSSLSTFDTPLGVLGGLCCWEHLQPLSKYALYAQNEEI
                                                                                                                                                                                                     75.9%; Score 1339; DB 8; ilarity 75.2%; Pred. No. 3.3e-140; Conservative 30; Mismatches 47;
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2002US-0392944P.
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                                                                        The present invention relates to a method for preparating an atorvastatin intermediate known as (R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate ((R)-ethyl 4-cyano-3-hydroxybutyrate (R)-ethyl 4-cyano-3-hydroxybutyrate of (R)-ethyl Covano-3-hydroxybutyrate to 3-hydroxyglutaronitrile, catalytic conversion of 3-hydroxyglutaronitrile or equivalent to 4-cyano-3-cyano-3-hydroxybutyrate acid with a polypeptide having nitrilase activity, cacid, and converting this to (R)-ethyl 4-cyano-3-hydroxybutyrate. The method involves whole cell processes, cell lysate process, "one pot" processes, and "multi-pot" processes using a variety of parameters. Atorvastatin is used, in conjunction with dietary restriction, in the management of hyperlipidaemia, including hypercholesterolaemia, mixed dyslipidaemia and homozygous familial hypercholesterolaemia. The present sequence represents a nitrilase polypeptide obtained from an
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28-JUN-2002; 2002US-0392944P
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DB; ADI62189.
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Best Local S
Matches 252
                                                                                                          30-JUL-2001;
22-JAN-2002;
15-MAY-2002;
09-SEP-2002;
 Novel isolated or recombinant polypeptide useful in production of food additives.
                                  N-PSDB;
                                                                                                                                                                          29-DEC-1999;
07-DEC-2000;
                                                                                                                                                                                                                                                                                           (R)-ethyl 4-cyano-3-hydroxybutyric acid; nitrile hydrolysis; carboxylic acid; cyanohydrin moiety hydrolysis; aminonitrile moiety hydrolysis; chiral alpha-hydroxy acid molecule; chiral amino acid molecule; (S)-ethyl 4-cyano-3-hydroxybutyric acid; (R)-mandelic acid; (S)-mandelic acid; (S)-phenyl lactic acid derivat (R)-phenyl lactic acid derivative; % enantiomeric excess; % diasteromeric excess; food additive; drug intermediate; nitrilase.
                                                                Desantis
                                                                                                                                                    28-DEC-2000;
21-JUN-2001;
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                                                                                                                                                                                                                                                                          Unidentified.
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                                2004-121569/12.
DB; ADI64310.
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2000US-00751299
2001US-0300189
2001US-0300189
2001US-0309006P
2002US-0351336P
2002US-00146772
2002US-00241742
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           nitrilase activity,
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CC The invention describes an isolated or recombinant polypeptide (I) and comprising amino acids having a sequence at least 50 % identical to a CC comprising amino acids having a sequence at least 50 % identical to a CC sequence (S1) available in electronic form (BC) from the following web CC site ftp.seqdata.uspto.gov/sequence.html?DocID=2004014195, or its CC variants, having one or more mutations at residue 55 Lys, Gly or Glu, at CC residue 60 glutamic acid, at residue 111 Ser, their combinations or CC fragments. (I) is useful for: producing an (R)-ethyl 4-cyano-3-CC hydroxybutyric acid; hydrolysing a nitrile to a carboxylic acid; hydrolysing a nitrile to a carboxylic acid; components applia-hydroxy acid molecule or a chiral amino acid molecule; CC producing an (S)-ethyl 4-cyano-3-hydroxybutyric acid; producing an (R)-mandelic acid or (S)-mandelic acid; producing (S)-phenyl lactic acid cerivative or an (R)-mandelic acid derivative; modifying a modified compound. The inventive method is useful card and for identifying a modified compound. The inventive method is useful contemporation of determining % enantiomeric excess or % diasteromeric ceress. (I) is useful in the production of food additives and drug intermediates. This is the amino acid sequence of a nitrilase of the
Search completed: April 27, 2006, 00:54:59
Job time : 133.234 secs
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                                                                                                                                                                                                                                                                              181 HCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKH 240
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                                                                                                                                                                                                                                               181 HFAAMPSFSIYRQATEVLGPEVNVAASRIYAVEGQCFVLASCALVSPEMIEMLCTDESKH
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tch 75.9%; Score 1339; DB 8; al Similarity 75.2%; Pred. No. 3.3e-140; 252; Conservative 30; Mismatches 47;
                                                                                                                    301 RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLE 335
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                                                                                                                                                                  SLLQAGGGYSRIIGPDGSDLARPLGENEEGILYATLDPAARIYAKTAADPAGHYSRPDVT
                                                                                  RLLINRSANQPVVEVGREI-
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  Query
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2: /cgn2_6/ptodata/1/iaa/6_COMB.pep:*

3: /cgn2_6/ptodata/1/iaa/H_COMB.pep:*

4: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*

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GenCore version 5.1.7
(c) 1993 - 2006 Biocceleration Ltd
                     US-08-690-493-1
US-09-806-875A-2
US-09-823-373-5
US-09-823-373-14
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Title:

Result No.

29 131 7.4 303 2 US-08-876-398A-58 30 131 7.4 303 1 US-08-294-871A-38 31 130 7.4 303 1 US-08-294-871A-38 32 130 7.4 303 1 US-08-294-871A-60 33 130 7.4 303 1 US-08-294-871A-60 34 130 7.4 303 1 US-08-294-871A-60 35 130 7.4 303 1 US-08-294-871A-60 36 130 7.4 303 2 US-08-876-398A-38 37 130 7.4 303 2 US-08-876-398A-44 38 130 7.4 303 2 US-08-876-398A-50 39 130 7.4 303 2 US-08-876-398A-50 40 130 7.4 303 2 US-08-876-398A-60 41 130 7.4 304 1 US-08-876-398A-60 41 130 7.4 304 1 US-08-900-711-5 42 130 7.4 304 1 US-08-900-711-5 43 130 7.4 304 1 US-08-815-356-2 44 130 7.4 304 1 US-08-815-3438-5 45 130 7.4 304 1 US-08-762-3438-5																		
7.4 303 2 US-08-876-398 7.4 303 1 US-08-294-871 7.4 303 1 US-08-294-871 7.4 303 1 US-08-294-871 7.4 303 1 US-08-294-871 7.4 303 1 US-08-294-871 7.4 303 1 US-08-294-871 7.4 303 1 US-08-876-398 7.4 303 2 US-08-876-398 7.4 303 2 US-08-876-398 7.4 303 2 US-08-876-398 7.4 303 2 US-08-876-398 7.4 303 2 US-08-876-398 7.4 303 2 US-08-876-398 7.4 304 1 US-08-815-356 7.4 304 1 US-08-815-356 7.4 304 1 US-08-815-356 7.4 304 1 US-08-8762-433 7.4 304 1 US-08-7011	45	44	43	42	41	40	39	38	37	36	<u>ω</u>	34	ω ω	32	31	30	29	
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2 US-08-876-398 2 US-08-876-398 1 US-08-294-871 1 US-08-294-871 1 US-08-294-871 1 US-08-294-871 1 US-08-294-871 1 US-08-876-398 2 US-08-876-398 2 US-08-876-398 2 US-08-876-398 2 US-08-876-398 2 US-08-876-398 1 US-08-876-398 1 US-08-876-398 1 US-08-900-711 1 US-08-900-711 1 US-08-900-712-313	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	
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ALIGNMENTS

; FEATURE: ; OTHER INFORMATION: US-08-690-493-1 US-08-690-493-1 Sequence 1, Application Patent No. 5872000 COMPUTER READABLE FORM: MEDIUM TYPE: Ploppy disk COMPUTER: IBM PC Compatible COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: MS-DOS Editor CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/690,493 FILING DATE: 31 JUL-1996 PRIOR APPLICATION DATA: APPLICATION NUMBER: JP 213061/1995 PILING DATE: 31-JUL-1995 ATTORNEY/AGENT INFORMATION: NAME: DAVIDSON, Clifford M REGISTRATION NUMBER: 32,728 REFERENCE/DOCKET NUMBER: 3821005 TELECOMMUNICATION INFORMATION: TELECOMMUNICATION INFORMATION: TELECOMMUNICATION INFORMATION: TELEFAX: (212) 382-2124 INFORMATION FOR SEQ ID NO: GENERAL INFORMATION: MOLECULE TYPE: ORIGINAL SOURCE: SEQUENCE CHARACTERISTICS: LENGTH: 344 amino acid residues TYPE: amino acid TOPOLOGY: linear APPLICANT: Yu, Fujio TITLE OF INVENTION: 1 CORRESPONDENCE ADDRESS: NUMBER OF SEQUENCES: STREET: 1140 Aver CITY: New York STATE: New York COUNTRY: U.S.A. STRAIN: MA-1 CELL TYPE: u ORGANISM: ADDRESSEE: 10036 1140 Avenue of the Americas Gordona terrae unicellular organism Steinberg, Raskin & Davidson, protein No. US/08690493 Xaa 5872000el Nitrilase Gene is Met or a deletion

54.1%; ilarity 58.3%; Conservative 4

; Score 955.5; DB 1; pred. No. 2.4e-97; 47; Mismatches 82;

Length 344; Indels

1;

Gaps

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FILE REPERENCE: 49462
CURRENT APPLICATION NUMBER: US/09/806,876A
CURRENT FILING DATE: 2001-05-21
PRIOR APPLICATION NUMBER: Germany/19848129.2
PRIOR FILING DATE: 1998-10-19
NUMBER OF SEQ ID NOS: 9
SOFTWARE: WordPerfect version 6.1
SEQ ID NO 2
LENGTH: 356
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US-09-806-876A-2
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Patent No. 6869783
                                                                                                                                                                                                                                                                                                                                                        Query Match 46.6%; Score 822; DB 2; Length Best Local Similarity 48.2%; Pred. No. 1.8e-82; Matches 160; Conservative 56; Mismatches 114; Indel
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ORGANISM: Alcaligenes faecalis
-09-806-876A-2
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APPLICANT: Friedrich, Thomas
APPLICANT: Hauer, Bernhard
TITLE OF INVENTION: A process for preparing chiral carboxylic acids
TITLE OF INVENTION: from nitriles using a nitrilase or microorganisms
TITLE OF INVENTION: which comprise a gene for the nitrilase
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                                                                                                  CAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKHA
                                                                                                                                         LWSRRKLKPTHVERTVFGEGYARDLIVSDTELGRVGALCCWEHLSPLSKYALYSQHEAIH
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                  LLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKWAADPAGHYSRPDITR
                                                                     IAAWPSFSLYSEQAHALSAKVNMAASQIYSVEGQCFTIAASSVVTQETLDMLEVGEHNAP
LLKVGGGSSMIFAPDGRTLAPYLPHDAEGLIIADLNMEEIAFAKAINDPVGHYSKPEATR
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APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR APPLICATION NUMBER: 60/193,707
PRIOR FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 32
SOFTWARE: Microsoft Office 97
SEQ ID NO 5
LENGTH: 369
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US-09-823-373-5
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APPLICANT: Chauhan, Sarita
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                                                                                                                                              Sequence 14, Application US/09823373 Patent No. 6870038 GENERAL INFORMATION:
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Best Local Similarity
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APPLICANT: Chauhan, Sarita
APPLICANT: DiCosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: Gavagan, John
APPLICANT: Fallon, Robert
TITLE OF INVENTION: Isolation and Expression of a Gene for Nitrilase
TITLE OF INVENTION: Acidovorax Facilis 72W
FILE REFERENCE: BC-1032 US NA
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47.6%; Pred. No. 2.4e-77;
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SOFTMARE: Microsoft Office 97
SEQ ID NO 14
LENGTHY A TO 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 5,
Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 150; Conservative
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Best Local (
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                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 60/193,707 PRIOR FILING DATE: 2000-03-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/823,373
CURRENT FILING DATE: 2001-03-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Acidovorax facilis
                                      ZIP: 22313-1404
ZIP: 22313-1404
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIA Release #1.0, Version
CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                  ADDRESSEE: BURNS,
STREET: P.O. Box
CITY: Alexandria
STATE: VA
COUNTRY: USA
APPLICATION NUMBER: US/0 FILING DATE: 23-MAY-1995 CLASSIFICATION: 530
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8 ACVQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSPAWAMQFV
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5629190
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEIHCAAWPS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATVQAEPVWLDADATIDKSIGIIEEAAQKGASLIAFPEVFIPGYPYWAWLGDVKYSLSFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGWARIYGPDGSELAKPLAEDAEGILYAEIDLEQILLAKAGADPVGHYSRPDVLSVQFDP
                                                                                                                                                                                                                                                                                                                                                                                    Petre, Dominique
Cerbeleaud, Edith
Levy-Schil, Sophie
Crouzet, Joel
                                                                                                                                                                                                                         P.O. Box
                                                                                                                                                                                                                BURNS, LU... POX 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44.0%;
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                                                                                                                                                                                                                                                                                     Expression Cassettes and Host Microorganisms Enabling Them to be Obtained, and Method of Converting Nitriles to Carbon lates by Means of Said Polypeptides
                                                                                                                                                                                                                                                                                                                                                      Polypeptides Possessing A Nitrilase Activity, DNA Sequence Coding for Said
                                                                                                                                                                                                                                       DOANE,
                                 US/08/447,702
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                                                                                                                                                                                                                                         SWECKER & MATHIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 776; DB 2;
Pred. No. 2.4e-77;
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RESULT 6
US-08-465-615-5
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                                                                                                                                                                                                                                                                                                                                                        Sequence 5, Application Patent No. 5635391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches 134;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
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SEQUENCE CHARACTERISTICS:
SECUTION: 354 amino acids
                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: PETRE,
APPLICANT: CERBEL!
                                                                                                                                                                APPLICANT: LEVY-SCHI
APPLICANT: CROUZET,
TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: MCGOWAN, Malcolm K.
REGISTANION NUMBER: 39,300
REFERENCE/DOCKET NUMBER: 00
TELECOMMUNICATION INFORMATION:
TELEPHONE: 703-836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 0
FILING DATE: 10-FEB-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: FR 9
FILING DATE: 10-AUG-1992
                                                                                                                             NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                    STREET: P.O. Box
CITY: Alexandria
STATE: Virginia
                               COUNTRY:
                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE: 703-836-2021
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120 DTIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEE 179
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DMLCTDDEKHALILLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKWAADP 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGHYSRPDITRLLIDRSPKLPVVEI 315
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NLIGKHRKFKPTSSERAVWGDGDGSMAPVFKTEYGNLGGLQCWEHALPLNIAAMGSLNEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MMWAVLF-----KNAIEIPSKEVQQISDAAKKNGVYVCVSVSEKDNASLYLTQLWFDPNG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGHYSTPGFLSLTFDQSEHVPVKKI 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DMIGKDEFSKNFLPLGSGNTAIIS-NTGEILASIPQDAEGIAVAEIDLNQIIYGKWLLDP
                                                Virginia
                                                                                         E: Burns, Doa
P.O. Box 1404
                                                                                                                                                                                                                                                          CERBELEAUD, Edith
LEVY-SCHIL, Sophie
CROUZET, Joel
                                 United States
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             36.1%;
ilarity 41.2%;
Conservative 62
FORM:
                                                                                                                                                                                                                                                                                               , Dominique
LEAUD, Edith
                                                                                                                                                                POLYPEPTIDES POSSESSING A NITRILASE
ACTIVITY, DNA SEQUENCE CODING FOR AID POLYPEPTIDES,
EXPRESSION CASSETTES AND HOST MICROORGANISMS ENABLIN
TO BE OBTAINED, AND METHOD OF CONVERTING NITRILES TO
CARBOXYLATES BY MEANS OF SAID POLYPEPTIDE
                                                                                                           Doane,
                                                                                                                                                                                                                                                                                                                                                                           US/08465615
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                                                                                                               Swecker & Mathis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 003025-019
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GENERAL INFORMATION:
APPLICANT: Goldman, Barry S.
APPLICANT: Hinkle, Gregory J.
APPLICANT: Slater, Steven C.
APPLICANT: Wiegand, Roger C.
TITLE OF INVENTION: Myxococcus xanthus Genome See
FILE REFERENCE: 38-10(15849)B
CURRENT APPLICATION NUMBER: US/9/902,540
CURRENT FILING DATE: 2001-07-10
PRIOR APPLICATION NUMBER: 60/217,883
PRIOR FILING DATE: 2000-07-10
                                                                                                                                                                                                                                      RESULT 7
US-09-902-540-14601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-465-615-5
                                                                                                                                                                                                      Sequence 14601, Application US/09902540 Patent No. 6833447
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Matches 134; Conserv
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INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 354 amino acids
NUMBER OF SEQ ID NOS: 16825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
NAME: Crane-Feury, Sharon E
REGISTRATION NUMBER: 36,113
REFERENCE/DOCKET NUMBER: 003025-015
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 836-6620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0
FILING DATE: 10-FEB-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: amino acid TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: 435
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE:
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                                                                                                                                                                                                                                                                                                                                         AGHYSRPDITRLLIDRSPKLPVVEI 315
                                                                                                                                                                                                                                                                                                                                                                             DMIGKDEFSKNFLPLGSGNTAIIS-NTGEILASIPQDAEGIAVAEIDLNQIIYGKWLLDP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IHCAAWPSFSLYPNAAKALGPDVNVAA-----SRIYAVEGQCFVLASCALVSQSMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NLIGKHRKFKPTSSERAVWGDGDGSMAPVFKTEYGNLGGLQCWEHALPLNIAAMGSLNEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PAWAMQFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VKVAAVQAAPVFMNLEATVDKTCKLIAEAASMGAKVIGFPEAFIPGYPYWIWTSNMDFTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IKVACVQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDS-----
                                                                                                                                                                                                                                                                                                          AGHYSTPGFLSLTFDQSEHVPVKKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      36.1%; Score 638; DB 1; Length 354; 41.2%; Pred. No. 5e-62;
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                                                                                                                                                                                                                                                                                                            323
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                                                                                                  Sequences and Uses Thereof
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                                                                                                                                                                                     Query Match
Best Local S
Matches 77
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                                                                                                                                                                                                                                                                                                                            TYPE:
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; TYPE: PRT; ORGANISM: Myxococcus xanthus US-09-902-540-14601
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 8
US-10-105-294B-2
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LENGTH: 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: DRAUZ, KARLHEJ
APPLICANT: MAY, OLIVER
APPLICANT: BOMMARIUS, AN
APPLICANT: SYLDATK, CHER
APPLICANT: ALTENBUCHNER,
APPLICANT: WERNER, MARKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 2
LENGTH: 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity Matches 67; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: WERNER, MARKUS
APPLICANT: SIEMANN-HERZBERG, MARTIN
TITLE OF INVENTION: D-Carbamoylase from Arthrobacter crystallopoietes
FILE REFERENCE: 220024USOX
CURRENT APPLICATION NUMBER: US/10/105,294B
CURRENT FILING DATE: 2000-08-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: DE 101 14 999.9
PRIOR FILING DATE: 2001-03-26
NUMBER OF SEQ ID NOS: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: ARTIFICIAL SEQUENCE FEATURE:
                                                                                                                                                                                                                                                                         Local Similarity hes 77; Conserv
128 --LKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEIHCAAW 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               214 ANRVTYGHALVVDPWG--LVTARASEGEGLALAPVDP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          182 CAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKHA 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132 FVERTLFGEG------DGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEIH 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57 EGLDGPTLSQMASLARELKVTLLAGSVLETGAPGGRLYNTSVLFGPGGERLAVYRKIHLF 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         75 LELDGPQAKRISDAAKRIGIMVTLGM---SERVGGTLYISQWFIGDNGDTIGARRKLKPT 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 STADKAHNLEAATRLVRRAVALGARLVGLPEN-----FSWMGPEP-----ERQDAA 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21 ATVDK-----TIELMEEAARNNARLIAFPETWIPGYPWFLWLDSPAWAMQFVRQYHENS 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDP
                                                                             --DVAPLFERAKDLGVGFYLGYAELTSDEKRYNTSILVNKHGDIVGKYRKMHLPGHADNR
                                                                                                                                                                                                                     VDKTIELMEEAARNNARLIAFPE----TWIPGYPWFLWLDSPAWAMQFVRQYHENSLELD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DVE---VGDGATYQESAAVAPGTEVVSAETEVGRIGLSVCYDLRFP-ELYRRLSREGATL 172
                                                                                                                           GPQAKRISDAAKRLGIMVTLGMSERVGG-TLYISQWFIGDNGDTIGARRK------
                                                                                                                                                                         VARLIALLEBAASQGAELVVFPELTLTTFFP-RTWFEEGD-----FEEYFDKSMPND 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BOMMARIUS, ANDREAS SYLDATK, CHRISTOPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALTENBUCHNER,
                                                                                                                                                                                                                                                                   7.9%; Score 139.5; DB 2; ilarity 24.3%; Pred. No. 1.1e-06; Conservative 47; Mismatches 134;
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Pred. No. 3.4e-08;
36; Mismatches 116;
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                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                       Length 315;
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                                                                                                                                                                                                                                                                         Gaps
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134

Gaps

56 62

273 274 216

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RESULT 9
US-07-917-111-5
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                                      US-07-917-111-5
                                                                                                 INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 311 amin
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GENERAL INFORMATION:
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION UNMERS: JP 400848/1990
PILING DATE: 07-DEC-1990
PRIOR APPLICATION UNMER: JP 407922/1990
PRIOR APPLICATION DATA:
APPLICATION UNMER: JP 407922/1990
PRIOR APPLICATION DATA:
DRIVER OF THE PRIOR APPLICATION DATA:
                                                                                                                                                                                                       APPLICATION NUMBER: PCT/JP91/01
FILING DATE: 06-DEC-1991
ATTORNEY_AGENT INFORMATION:
NAME: Player Esq., William E.
REGISTRATION NUMBER: 31,409
REFERENCE/DOCKET NUMBER: P-500-
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-887-0400
TELEPHONE: 202-887-0400
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APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: JP 0
FILING DATE: 11-APR-1991
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE: 19920807
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MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Yajima, TITLE OF INVENTION: TITLE OF INVENTION:
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                                                         MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS
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                                                                                                                                                                           TELEPHONE: 202-835-0605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                               TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: PatentIn Release #1.0, Version #1.25
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                                                                             TOPOLOGY:
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                                                                                             AMINO ACID
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EGLPNQHLEKKYFREGD-LGFGVFDFHGVQVGMCLCNDRRWPEVYRSLALQGAELVVLGY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yamada, run---
Takano, Masayuki
Tkenaka, Yasuhiro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E: Wegner, Cantor, Mueller & Player 1233 20th Street, N.W., Suite 300
                                                                                                                311 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yajima, Kazuyoshi
WENTION: PROCESS FOR PRODUCTION OF D-ALPHA-AMINO
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                                                                             linear
                                                         protein
7.98;
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Score 139;
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Length 311;
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US-07-917-111-6
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Matches 80; Conservative 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 6,
                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0, V
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/917,111
FILING DATE: 19920807
CLASSIFICATION: 435
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APPLICANT:
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MEDIUM TYPE: Floppy disk
                                                       FILING DATE: 06-DEC-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                           APPLICATION NUMBER: JP 078840/1991 FILING DATE: 11-APR-1991 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 400848/1990
FILING DATE: 07-DEC-1990
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Yajima, Kazuyoshi
TITLE OF INVENTION: PROCESS FOR PRODUCTION OF D-ALPHA-AMINO
TITLE OF INVENTION: ACIDS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE: D.C.
STR: 20036-8218
                                                                                                                                                                                           APPLICATION NUMBER: JP 407922/1990 FILING DATE: 27-DEC-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: Wegner, Cantor
STREET: 1233 20th Street,
CITY: Washington
REFERENCE/DOCKET NUMBER:
                    REGISTRATION NUMBER:
                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              274
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                                  Player Esq., William E.
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Takano, Masayuki
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Takahashi, Satomi
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Street, N.W., Suite 300
                                                                                               PCT/JP91/01696
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P-500-23486
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9; Mismatches 146;
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TELEPHONE: 202-887-0400
TELEFAX: 202-835-0605
TELEX: 440706
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 311 amino acids
TYPE: AMINO ACID
STRANDEDNESS: Bingle
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US-08-479-638-5
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
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                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compartible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE: 07-JUN-19
                                                                                                                                                                                                                                                     APPLICANT: Takahashi, Satomi
APPLICANT: Yajima, Kazuyoshi
TITLE OF INVENTION: PROCESS FOR PRODUCTION OF D-ALPHA-AMINO
TITLE OF INVENTION: ACIDS
                                                                                                                                                                                    NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
ADDRESSE: Wegner, Cantor, Mueller & Player
STREET: 1233 20th Street, N.W., Suite 300
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                                                                                                                     STATE: D.C.
STATE: D.C.
STP: 20036-8218
                                                                                                                                                              STREET: 1233 ZVLI
CITY: Washington
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80; Conservative
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KNK 003A (FERM BP-3181)
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linear
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Takano, Masayuki
Ikenaka, Yasuhiro
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07-JUN-1995
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23.7%; Pred. No. 1.2e-06;
ive 49; Mismatches 146;
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                US/08/479,638
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TOPOLOGY: linear; MOLECULE TYPE: protein US-08-479-638-5
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US-08-479-638-6
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FILING DATE: 06-DEC-1991
ATTORNEY/AGENT INFORMATION:
NAME: Player Esq., William E.
REGISTRATION NUMBER: 31,409
REFERENCE/DOCKET NUMBER: P-50
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-887-0400
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                                                                                              GENERAL INFORMATION:
APPLICANT: Nanba, Hirokazu
APPLICANT: Yamada, Yukio
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PRIOR APPLICATION DATA:
APPLICATION UNDER: US 07/917,111
FILING DATE: 07-AUG-1992
APPLICATION NUMBER: UP 400848/1990
FILING DATE: 07-DEC-1990
PRIOR APPLICATION DATA:
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FILING DATE: 11-APR-1991
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: PCT/JP91/01696
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LENGTH: 311 amino acid
                  APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
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OF INVENTION:
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)GY: linear
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                I: Yamada, Yukio
I: Takano, Masayuki
I: Ikenaka, Yasuhiro
I: Takahashi, Satomi
I: Yajima, Kazuyoshi
INVENTION: PROCESS FOR PRODUCTION OF D-ALPHA-AMINO
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Pred. No. 1.2e-06;
9; Mismatches 146
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US-08-479-638-6
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: Player Esq., William E.
REGISTRATION NUMBER: 31,409
REFERENCE/DOCKET NUMBER: P-50
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-887-0400
TELEFAX: 202-835-0605
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 311 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PILING DATE: 07-DEC-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 407922/1990
FILING DATE: 27-DEC-1990
PRIOR APPLICATION DATA:
THE OTHER PRIOR APPLICATION DATA:
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ORIGINAL SOURCE:
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APPLICATION NUMBER: US
FILING DATE: 07-JUN-19
CLASSIFICATION: 435
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APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
COMPUTER: IBM PC com
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ATTORNEY/AGENT INFORMATION:
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APPLICATION NUMBER: 1
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CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDIUM TYPE: Ploppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOPTWARE: PatentIn Release #1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: D.C.
SIP: 20036-8218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: JP 078840/1991 FILING DATE: 11-APR-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 07-AUG-1992 APPLICATION NUMBER: JP 4
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
229
                                   217 FYLASCALVSQSMIDMLCTDDEKHALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYA---
                                                                          169
                                                                                                                 159 LCCWEHLQPLTKYALYAQNEEIHCAAW--PSFSLYPNAAKALGPDVNVAASRIYAVEGQC
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                                                                                                                                                                                                                                      57 VI------EDEAELDSFYEKEMPGPETQPLFDEAKRLEIGFYLGYAELAEEGGRKRRFN 109
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                                                                                                                                                                                                                                                                                                                 4 VNAAAAQMGPISRSETRKDTVRRLIALMREAKARGSDLVVFTELALTTF-----FPRW 56
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                                                                                                                                                                                                                                                           AMQEVRQYHENSLELD-------GPQAKRISDAAKRLGIMVTLGMSE--RVGG--TLYI 110
                                                                          CICNDRRWPETYRVMGLQGVEMVMLGYNTPYDHTGHDDIDSLTQFHNHLSMQAGAYQNST
                                                                                                                                                        TSILVDRSGRIVGKYRKVHLPGHKEPQPGRKHQHLEKRYFEPGD-LGFGVWRAFDGVMGM 168
                                                                                                                                                                                             SQWFIGDNGDTIGARRKL-------KPTFVERTLFGEGDGSSLAVFETSVGRLGG 158
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KNK 003A (FERM BP-3181)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pseudomonas
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-CGTEEGSKMV----
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-GOSVIVAP-SGEIVAMACTIEDEIITARC
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RESULT 13
US-08-294-871A-70
US-08-294-871A-70
; Sequence 70, Application 5824522
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APPLICANT: Ikenaka
APPLICANT: Nanba,
APPLICANT: Takano,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Pacentin Release #1.0, Version #1.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/294,871A
FILING DATE: 22-AUG-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/971,758
FILING DATE: 12-APR-1993
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
                                                                                                                                                                                                                                                                 APPLICATION NUMBER: JP 400
FILING DATE: 07-DEC-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP
FILING DATE: 06-DEC-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 407
FILING DATE: 27-DEC-1990
PRIOR APPLICATION DATA:
ADDITICATION DATA:
ADDITICATION DATA:
PRIOR APPLICATION DATA:
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FILING DATE: 07-AUG-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/211,641
FILING DATE: 11-APR-1994
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: U.S.
ZIP: 20007-5109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                  FILING DATE: 10-AUG-1992 PRIOR APPLICATION DATA:
                                                                                                                                                 APPLICATION NUMBER: JP 1
FILING DATE: 12-JUN-1991
PRIOR APPLICATION DATA:
                                                                                                                                                                                                              APPLICATION NUMBER:
FILING DATE: 11-APR-
PRIOR APPLICATION DATA:
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TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
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                                                                       PRIOR APPLICATION DATA:
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                                                                                                              APPLICATION NUMBER: FILING DATE: 10-JUN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE:
                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     274 DLDMGKR-YRETIFDFARH-REPDAYRLIVERKGAVP 308
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Hiraishi, Yoshiro
WENTION: Immobilized
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Okubo, Kazuma
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Yajima, Kazuyoshi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Takano, Masayuki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Namba, Hirokazu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            kenaka,
                                                                                                                  10-JUN-1992
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05-AUG-1993
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Process for Producing D-a-Amino Acc
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                  PCT/JP93/01101
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US-08-876-398A-70
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INFORMATION FOR SEQ ID NO: 7
SEQUENCE CHARACTERISTICS:
LENGTH: 311 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                  Sequence 70, Applicat
Patent No. 6083752
GENERAL INFORMATION:
APPLICANT: IKENAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: Wegner, Harold C.
REGISTRATION NUMBER: 25,258
REGISTRATION NUMBER: 74
REFERENCE/DOCKET NUMBER: 74
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 672-5300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: JP 340078/1992 FILING DATE: 21-DEC-1992 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                          APPLICANT: TAKAHASHI, SACOMI
TITLE OF INVENTION: DNA CODING FOR DECARBANYLASE IM
TITLE OF INVENTION: THERMOSTABILITY AND USE THEREOF
NUMBER OF SEQUENCES: 70
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
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les 80; Conserv
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                                                                                                           COUNTRY:
                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  229 WVIGTAK-----CGTEEGSKMV----GOSVIVAP-SGEIVAMACTIEDEIITARC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         217
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 159 LCCWEHLQPLTKYALYAQNEEIHCAAW---PSFSLYPNAAKALGPDVNVAASRIYAVEGQC 216
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                                                                                               RY: U.S.A.
20007-5109
                                                                                                                                                    Washington
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                                                                                                                                                                                                                                                                                                                         IKENAKA, Yasuhiro
NANBA, Hirokazu
TAKANO, Masayuki
YAJIMA, Kazuyoshi
                                                                                                                                                                       3000 K Street, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7.9%; Score 139; DB 1; Length 311; ilarity 23.7%; Pred. No. 1.2e-06; Conservative 49; Mismatches 146; Indels
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      Version #1.30
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Patent No. 5824522

GENERAL INFORMATION:
APPLICANT: INenaka
APPLICANT: Nanba,
APPLICANT: Takano,
APPLICANT: Yajima,
APPLICANT: Yamada,

Ikenaka,

Yasuhiro

APPLICANT: APPLICANT:

> Takahashi, Satomi Takano, Masayuki Yajima, Kazuyoshi Yamada, Yukio Nanba, Hirokazu

Okubo, Kazuma Yamada, Kazuhiko

Sequence 46, Application US/08294871A

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; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-876-398A-70
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RESULT 15
US-08-294-871A-46
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Best Local Similarity
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 311 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 11-APR-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO PO
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FILING DATE: 16-UUN-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/211,641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 25,258
REFERENCE/DOCKET NUMBER: 74.
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 10-AUG-1992
ATTORNEY/AGENT INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Wegner, Harold REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 05-AUG-1993
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                                                                                                                                                                                                                                    169 CICNDRRWPETYRVMGLQGVEMVMLGYNTPYDHTGHDDIDSLTQFHNHLSMQAGAYQNST 228
                                                                                                                                                                                                                                                                          159 LCCWEHLOPLTKYALYAQNEEIHCAAW--PSFSLYPNAAKALGPDVNVAASRIYAVEGQC 216
                                                                                                                                                                                                                                                                                                                 110 TSILVDRSGRIVGKYRKVHLPGHKEPQPGRKHQHLEKRYFEPGD-LGFGVWRAFDGVMGM 168
                                                                                                                                                                                                                                                                                                                                                       111 SQWFIGDNGDTIGARRKL-------KPTFVERTLFGEGDGSSLAVFETSVGRLGG 158
                                                                               274
                                                                                                                    275
                                                                                                                                                                                                                                                                                                                                                                                              57 VI------BDEAELDSFYEKEMPGPETQPLEDEAKKLEIGFYLGYABLAEEGGRKRREN 109
                                                                                                                                                                                                                                                                                                                                                                                                                                  63 AMQFVRQYHENSLELD------GPQAKRISDAAKRLGIMVTLGMSE--RVGG--TLYI 110
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5 IKVACVQAAPIYMD--LEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSPAW
                                                                                                                                                         WVIGTAK-----CGTEEGSKMV----GQSVÍVAP-SGEIVAMACTIEDEÍITARC 273
                                                                                                                                                                                               FVLASCALVSQSMIDMLCTDDEKHALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYA--
                                                                               DLDMGKR-YRETIFDFARH-REPDAYRLIVERKGAVP 308
                                                                                                                  NLDPGVRILAKMAADPAGHYSRPDITRLLIDRSPKLP 311
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10-AUG-1992
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US-08-294-871A-46
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MEDIUM TYPE: Floppy disk
COMPUTER: IEM PC compatible
COMPUTER: IEM PC COMPATION
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/294,871A
FILING DATE: 22-AUG-1994
CLASSIFICATION: 435
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 12-JUN-1991
PRIOR APPLICATION DATA:
APPLICATION DATA:
PRIOR APPLICATION UNMBER: PCT/JP92/00739
FILING DATE: 10-JUN-1992
PRIOR APPLICATION NUMBER: JP 212692/1992
APPLICATION NUMBER: JP 212692/1992
FILING DATE: 10-AUG-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP93/01101
FILING DATE: 05-AUG-1993
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
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FILING DATE: 07-AUG-1992
PRIOR APPLICATION DATA:
APPLICATION UMBER: US 08/211,641
FILING DATE: 11-APR-1994
PRIOR APPLICATION UMBER: UJ 400848/1990
APPLICATION NUMBER: UJ 400848/1990
FILING DATE: 07-DEC-1990
PRIOR APPLICATION NATA:
APPLICATION NUMBER: PCT/JP91/01696
FILING DATE: 06-DEC-1991
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
DATE: 07-DEC-1991
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
                                                                                                     TELEX: 904136
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 303 amino acid
                                                                                                                                                                                                        NAME: Wegner, Harold C.
REGISTRATION NUMBER: 25,258
REFERENCE/DOCKET NUMBER: 74129/127/AOPA
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 672-5300
TELEFAX: (202) 672-5399
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FILING DATE: 27-DEC-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 078840/1991
FILING DATE: 11-APR-1991
PRIOR APPLICATION NUMBER: JP 140051/1991
APPLICATION NUMBER: JP 140051/1991
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APPLICATION NUMBER: US 07/971,758
FILING DATE: 12-APR-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/917,111
                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: JP 340078/1992 FILING DATE: 21-DEC-1992 ATTORNEY/AGENT INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                              MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: Washington STATE: D.C.
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3000 K Street, N.W.
                                                                                                     303 amino acids
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Query Match

7.5%; Score 133;

DB 1;

Length 303;

20 EATUVELIELMEEAARNARLAFPETHIPGYPWFLMLDSPAWAMGFVROYHENSLELD- 78 21 EQUVVELLDMLTKAASRGANFIVFPELALTTFFPRWYFTDEAELDS 66 21 EQVVVELLDMLTKAASRGANFIVFPELALTTFFPRWYFTDEAELDS 66 22 FYETEMPGPVVRPLFEKAAELGIMVTLGMSERVGGTLYISQWFIGDNGDTIGARRK 127 23 FYETEMPGPVVRPLFEKAAELGIGFNLGYAELVVEGGVKRFNTSILVDKSGKIVGKYRK 126 24 FYETEMPGPVVRPLFEKAAELGIGFNLGYAELVVEGGVKRFNTSILVDKSGKIVGKYRK 126 25 FYETEMPGPVVRPLFEKAAELGIGFNLGYAELVVEGGVKRFNTSILVDKSGKIVGKYRK 126 26 FYETEMPGPVVRPLFEKAAELGIGFNLGYAELVVEGGVKRFNTSILVDKSGKIVGKYRK 126 27 INLPGHKEYEAYRPFQHLEKRYFEPGD-LGFPVYDVDAAKMGMFICNDRRWPEAMRVMGL 185 27 INLPGHKEYEAYRPFQHDHLTSFPHLLSMQAGSYQNGAMSAAAGKAGMEENC 242 28 ALVSQSMIDMLCTDDEKHALLLAGGGHSRIIGPDGAGSYQNGAMSAAAGKAGMEENC 242 29 ALVSQSMIDMLCTDDEKHALLLAGGGHSRIIGPDGAGSYQNGAMSAAAGKAGMEENC 242 30 ALVSQSMIDMLCTDDEKHALLLAGGGHSRIIGPDGAGSYQNGAMSAAAGKAGMEENC 242 31 HL
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Search completed: April 27, 2006, 01:02:22 Job time : 34.552 secs

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Result
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Maximum Match 100%
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Perfect score:
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Match Length
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1: /cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*

2: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*

3: /cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*

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6: /cgn2_6/ptodata/1/pubpaa/US11_PUBCOMB.pep:*
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US-10-241-742-58
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		US-10-440-503-212	US-10-440-523-212	US-10-241-742-212	US-10-146-772-212	US-10-461-925-6	US-10-440-503-6	US-10-440-523-6	US-10-241-742-6	US-10-146-772-6	US-10-461-925-334	US-10-440-503-334	US-10-440-523-334		Ξ.	US-10-461-925-306	US-10-440-503-306	1	CO FO 624 126 700

ALIGNMENTS

밁 ঠ 밁 Ś Вb δ В ş US-09-751-299-4 RESULT 1 US-09-751-299-4 Query Match Best Local Simi Matches 337; SOFTWARE: PatentIn Ver. 2.1 SEQ ID NO 4 LENGTH: 337 GENERAL INFORMATION: Sequence 4, Application US/09751299 Patent No. US20020012974A1 CURRENT APPLICATION NUMBER: US/09/751,299 CURRENT FILING DATE: 2000-12-29 PRIOR APPLICATION NUMBER: 60/254,414 PRIOR FILING DATE: 2000-12-07 PRIOR APPLICATION NUMBER: 60/173,609 PRIOR FILING DATE: 1999-12-29 NUMBER OF SEQ ID NOS: 4 APPLICANT: Madden, Mark APPLICANT: Weiner, David P. APPLICANT: Chaplin, Jennifer A. APPLICANT: Chaplin, Jennifer A. TITLE OF INVENTION: METHODS FOR PRODUCING ENANTIOMERICALLY PURE TITLE OF INVENTION: ALPHA-SUBSTITUTED CARBOXYLIC ACIDS FILE REFERENCE: DIVER1440-2 FEATURE: OTHER INFORMATION: Description of Unknown Organism: Obtained OTHER INFORMATION: environmental sample ORGANISM: Unknown Organism TYPE: PRT 241 181 181 121 121 61 61 1 MKBAIKVACVQAAPIYMDLEATVDKTIELMEBAARNNARLIAFPETWIPGYPWFLWLDSP Similarity AMAMQFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNGD 120 ALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKWAADPAGHYSRPDIT HCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKH TIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEI HCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKH TIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEI Conservative 100.0%; Score 1765; DB 3; 100.0%; Pred. No. 1.3e-176; 0; Mismatches Length 337; Indels from 0, Gaps an 180 240 120 240 60

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APPLICANT: Short, Jay
APPLICANT: Weiner, David
APPLICANT: Weiner, David
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: Milan, Aileen
APPLICANT: Meiner, Mark
APPLICANT: Madden, Mark
APPLICANT: Madden, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
CURRENT EDICKET DOCKET NO. US20030124698A1 DIV-013US
FILE REFERENCE: DOCKET NO. US20030124698A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT APPLICATION NUMBER: US/0309,006
PRIOR APPLICATION NUMBER: 006/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-36
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PRIOR FILLING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILLING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR FILLING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR APPLICATION NUMBER: US 60/173,609
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SOFTWARE: FastSEQ for
SEQ ID NO 386
LENGTH: 337
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Best Local 9
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ORGANISM: Unknown
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                                                                                                                                                        | HCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKH
                                                                                                                                                                                                                          TIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEI
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                                                                ALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKWAADPAGHYSRPDIT
                                                                                    ALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKMAADPAGHYSRPDIT
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RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLEEI
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b. US20030124698A1
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PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 386
LENGTH: 337
TYPE: PRT
ORGANISM: Unknown
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FILE REFERENCE: DOCKET NO. US20040002147A1 DIV-013US
FULRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR APPLICATION NUMBER: US/01/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2001-07-30
PRIOR PILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR PILING DATE: 2002-01-22
PRIOR PILING DATE: 2001-6-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR FILING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR PILING DATE: 2000-12-07
PRIOR FILING DATE: 2000-12-07
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US-10-241-742-386
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; OTHER INFORMATION: Obtained from an environmental sample US-10-241-742-386
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Publication No. US20040002147A1
GENERAL INFORMATION:
APPLICANT: Short, Jay
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Best Local
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                                  RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLEEI
                                                                                                     ALLLAGGGHSRIIGEDGGDLVAPLAENEEGILYANLDEGVRILAKMAADEAGHYSREDIT 300
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Burk, Mark
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                                                                           <u>ALLLAGGGHSRIIGÞDGGDLVAÞLAENEEGILYANLDÞGVRILAKNAADÞAGHYSRÞDIT</u>
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Pred. No. 3.5e-176;
1; Mismatches 0;
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RESULT 4

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Publication No.

Application US/10440523 o. US20040014195A1

GENERAL INFORMATION:

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RESULT 5
US-10-440-503-386
; Sequence 386, Application US/10440503
; Publication No. US20040038419A1
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PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 386
LENGTH: 337
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Best Local
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PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILE REFERENCE: Docket No. US20040014195A1
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
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Burk, Mark
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DeSantis, Gra
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Pred. No. 3.5e
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                                                                                                                                                                                                                                                                                      Sequence 386, Application US/10461925 Publication No. US20040053378A1 GENERAL INFORMATION:
APPLICANT: DeSantis, Grace
APPLICANT: Morgan, Brian
APPLICANT: Morgan, Brian
APPLICANT: Zhu, Zoulin
TITLE OF INVENTION: PROCESSES FOR MAKING (R)-ETHYL 4-CYANO-3-HYDROXYBUTYRIC;
FILE REFERENCE: 09010-270001
CURRENT APPLICATION NUMBER: US/10/461,925
CURRENT FILING DATE: 2003-06-13
PRIOR APPLICATION NUMBER: US 60/389,317
PRIOR APPLICATION NUMBER: US 60/389,317
PRIOR APPLICATION NUMBER: US 60/392,944
PRIOR APPLICATION NUMBER: US 60/392,944
PRIOR FILING DATE: 2002-06-28
NUMBER OF SEQ ID NOS: 386
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Best Local Similarity
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SEQ ID NO 386
LENGTH: 337
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APPLICANT:
APPLICANT:
APPLICANT:
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APPLICANT: DeSantis, G:
APPLICANT: Morgan, Bri
APPLICANT: Zhu, Zoulin
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APPLICANT: Stege, Justin
TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE PRESENCE OF
TITLE OF INVENTION: NITRILES AND/OR CYANIDE
FILE REFERENCE: 09010-900001
CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR FILING DATE: 2002-05-15
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DeSantis, Grace
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OTHER INFORMATION: Obtained from US-10-461-925-386
                                                                                                               FITLE OF INVENTION: NUMBER: US/10/146/98A1 DIV-013US
FILE REFERENCE: Docket No. US20030124698A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 09/751,299
PRIOR APPLICATION NUMBER: US 60/254,414
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PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 1999-12-29
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US-10-146-772-48
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APPLICANT: Weiner
APPLICANT: Chapli
APPLICANT: Chi, F
                                                          NUMBER OF SEQ ID NOS: 386
SOPTWARE: FastSEQ for Windows
SEQ ID NO 48
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APPLICANT:
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ORGANISM: Unknown
FEATURE:
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ORGANISM: Unknown
                                        LENGTH: 337
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DeSantis, Grace
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Chaplin, Jennifer
Chi, Ellen
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Burk, Mark
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pred. No. 3.5e-176;
1; Mismatches 0;
                                                                                    Version 4.0
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; FEATURE: ; OTHER INFORMATION: Obtained from an environmental sample US-10-146-772-48
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                                                                                                                                                                                        TITLE OF INVESTION: NUMBER: US/10/146/98A1 DIV-013US
FILLE REFERENCE: DOCKEt NO. US/200301246/98A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/146,772
CURRENT FILING DATE: 2002-05-15
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR PPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR PRILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR PRILING DATE: 2000-12-28
PRIOR APPLICATION NUMBER: US 60/751,299
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 2000-12-29
PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 1999-12-29
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US-10-146-772-58
; Sequence 58, Application US/10146772
; Publication No. US20030124698A1
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Best Local Similarity
Matches 252; Conserv
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APPLICANT: Weiner, Day
APPLICANT: Chaplin, Je
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aile
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                   SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 58 LENGTH: 337
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                                                                                                                    LENGTH: 3:
TYPE: PRT
                                                       FEATURE:
OTHER INFORMATION:
                                                                                             ORGANISM: Unknown
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Burk, Mark
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Madden, Mark
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                                                             Obtained
    75.9%;
                                                             from
Score 1339;
                                                             an
                                                             environmental sample
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    Length 337;
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RESULT 9
US-10-241-742-48
; Sequence 48, Applicat
; Publication No. US200
; GENERAL INFORMATION:
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PRIOR FILLING DATE: 2002-05-15
PRIOR FILLING DATE: 2002-05-15
PRIOR PELICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/309,31,336
PRIOR PILLING DATE: 2001-07-2
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR PILLING DATE: 2001-06-21
PRIOR PILLING DATE: 2001-06-21
PRIOR PILLING DATE: 2000-12-28
PRIOR PILLING DATE: 2000-12-8
PRIOR PILLING DATE: 2000-12-8
PRIOR PILLING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
PRIOR FILING DATE: 1999-12-29
 Query Match
Best Local S
Matches 252
                                                                        OTHER INFORMATION: Obtained -10-241-742-48
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TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040002147A1 DIV-013US
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Short, Jay
APPLICANT: Weiner, David
                                                                                                                                             SECTIWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 48
LENGTH: 337
TYPE: PRT
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                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS:
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                                                                                                              FEATURE:
                                                                                                                              ORGANISM: Unknown
                   Local Similarity
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DeSantis, Grace
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   Conservative
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                   75.9%; Score 1339; DB 4; 75.2%; Pred. No. 9.1e-132;
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                                                                                             from
   Mismatches
                                                                                           an
                                                                                           environmental
                                    Length 337;
                                                                                           sample
   Indels
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TITLE OF INVENTION: Nitrilases
FILE REFERENCE: Docket No. US20040002147A1 DIV
CURRENT APPLICATION NUMBER: US/10/241,742
CURRENT FILING DATE: 2002-09-09
PRIOR APPLICATION NUMBER: US/00/146,772
PRIOR PILING DATE: 2002-05-15
PRIOR PILING DATE: 2002-05-15
PRIOR PILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2002-01-22
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR PRIOR PRICE DATE: 2000-1-28
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US-10-241-742-58
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                                                                                                                                                       US-10-241-742-58
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                                                                            Query Match
Best Local S
Matches 252
                                                                                                                                                                                                                                                SOFTWARE: FastSEQ for Windows
SEQ ID NO 58
LENGTH: 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 58, Application US/10241742
Publication No. US20040002147A1
GENERAL INFORMATION:
APPLICANT: Short, Jay
APPLICANT: Weiner, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR FILING DATE: 2000-12-07
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                             NUMBER OF SEQ ID NOS: 386
                                                                                                                                                                         FEATURE:
OTHER INFORMATION:
                                                                                                                                                                                                            ORGANISM: Unknown
                                                                                                                                                                                                                                  TYPE: PRT
                                                                            Local Similarity
nes 252; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
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                      1 MKEAIKVACVQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSP
VKEAIKVACVQAAPVFLDLDATVDKTVALIEEAARNGARLIAFPETWIPGYPWFLWLDSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Weiner, David
Chaplin, Jenn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKMAADPAGHYSRPDIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMIDMLCTDDEKH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AMAMQFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MKBAIKVACVQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Milan, Aileen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLE 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIGARRXLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RLLINRSANQPVVEVGREI----PASAQGFEVE
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Madden, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chi, Ellen
                                                                            Conservative
                                                                                                                                                                           Obtained from an environmental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Jennifer
                                                                                               75.9%;
75.2%;
                                                                            30;
                                                                                                                                                                                                                                                                                         Version
                                                                          Score 1339; DB 4;
Pred. No. 9.1e-132;
0; Mismatches 47;
                                                                                                               Length 337;
                                                                                                                                                                           sample
                                                                            6
                                                                            Gaps
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APPLICANT: BURK, MARK
TITLE OF INVENTION: Nitrilases
TITLE OF INVENTION: Nitrilases
CURRENT APPLICATION NUMBER: US/10/440,523
CURRENT APPLICATION NUMBER: US/10/146,772
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2002-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/309,006
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2001-06-21
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR FILING DATE: 2001-06-21
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-09
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US-10-440-523-48
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                                                                                                                                                                                                                              Query Match
Best Local &
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APPLICANT: Weiner, D
                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: Obtained from an environmental
                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                        nes 252;
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                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RLLINRSANQPVVEVGREI-----PASAQGFEVE 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLE 335
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                                                                                     Weiner, David
Chaplin, Jennifer
Chi, Ellen
AWAMOFVROYHENSLELDGDQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Milan, Aileen
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Madden, Mark
                                                                                                                                                                                               75.9%; Score 1339; DB 4; llarity 75.2%; Pred. No. 9.1e-132; Conservative 30; Mismatches 47;
                                                                                                                                                                                                                                                                  Length 337;
                                                                                                                                                                                                                                                                                                                                                       sample
                                                                                                                                                                                                              Indels
                                                                                                                                                                                                           6
                                                                                                                                                                                                              Gaps
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                                          120
                                                                                                    60
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APPLICANT: Milan, Aileen
APPLICANT: DeSantis, Grace
APPLICANT: DeSantis, Grace
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
APPLICANT: Burk, Mark
TITLE OF INVENTION: Nitrilases
TITLE OF INVENTION: Nitrilases
TURRENT APPLICATION NUMBER: US/10/440,523
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US/10/146,772
PRIOR FILING DATE: 2002-05-15
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 60/301,336
PRIOR APPLICATION NUMBER: US 60/351,336
PRIOR FILING DATE: 2001-08-21
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/300,189
PRIOR APPLICATION NUMBER: US 60/351,299
PRIOR APPLICATION NUMBER: US 60/254,414
PRIOR APPLICATION NUMBER: US 60/254,414
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APPLICANT: Short, J
APPLICANT: Weiner,
APPLICANT: Chaplir
APPLICANT: Chi, E:
APPLICANT: Milan,
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US-10-440-523-58
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Publication No. US20040014195A1
                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: US 60/173,609
PRIOR FILING DATE: 1999-12-29
NUMBER OF SEQ ID NOS: 386
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 58
LENGTH: 337
TYPE: PRT
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Matches
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OTHER INFORMATION:
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Chaplin, Jenni
                                     AWGWQFVRRYHENSLVLDSPQAKRISEAAQRAGIYVALGYSERVSGTLYMGQWLIDDKGE
                                                                         AWAMQFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNGD 120
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75.2%;
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                                                                                                                                                                                          Score 1339; DB 4;
Pred. No. 9.1e-132;
0; Mismatches 47;
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APPLICANT: Stege, Justin
TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE
TITLE OF INVENTION: ASSAYS AND KITS FOR DETECTING THE
TITLE OF INVENTION: NITRILES AND/OR CYANIDE
FILE REFERENCE: 09010-900001
CURRENT APPLICATION NUMBER: US/10/440,503
CURRENT FILING DATE: 2003-05-15
PRIOR APPLICATION NUMBER: US 60/380,737
PRIOR FILING DATE: 2002-05-15
NUMBER OF SEQ ID NOS: 386
SOPTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 48
LENGTH: 337
TYPE: PRT
ORGANISM: Unknown
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Best Local Similarity
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APPLICANT:
APPLICANT:
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APPLICANT: Chaplin, Jennifer
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: DeSantis, Grace
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                                       RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLE 335
                                                                                                  ALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKWAADPAGHYSRPDIT 300
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             RLLINRSANQPVVEVGREI----PASAQGFEVE
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McQuaid, Jeffrey
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RESULT 15
US-10-461-925-48
(Sequence 48, Application US/10461925
; Sequence 48, Application US/20040053378A1
; GENERAL INFORMATION:
; APPLICANT: Mark J. Burk
; APPLICANT: DeSantis, Grace
; APPLICANT: Morgan, Brian
; APPLICANT: Zhu, Zoulin
; TITLE OF INVENTION: PROCESSES FOR MAKING (R)-ETHYL 4-CYANO-3-HYDROXYBUTYRIC ACID
; FILE REFERENCE: 09010-270001
; CURRENT APPLICATION NUMBER: US/10/461,925
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Best Local
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GENERAL INFORMATION:
APPLICANT: Weiner, David Paul
APPLICANT: Chaplin, Jennifer A
APPLICANT: Chi, Ellen
APPLICANT: Milan, Aileen
APPLICANT: Milan, Aileen
APPLICANT: Burk, Mark J.
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US-10-440-503-58
Sequence 58, Application US/10440503
Publication No. US20040038419A1
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TYPE: PRT
ORGANISM: Unknown
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CURRENT APPLICATION NUMBER: US/10/440,503

CURRENT FILING DATE: 2003-05-15

PRIOR APPLICATION NUMBER: US 60/380,737

PRIOR APPLICATION STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE OF STORED TO NOTE O
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OTHER INFORMATION:
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RLLINRSANQPVVEVGREI----PASAQGFEVE
                                                    RLLIDRSPKLPVVEIEGDLRPYALGKASETGAQLE 335
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30; Mismatches 47;
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CURRENT FILING DATE: 2003-06-13

PRIOR APPLICATION NUMBER: US 60/389,317

PRIOR PILING DATE: 2002-06-13

PRIOR APPLICATION NUMBER: US 60/392,944

PRIOR FILING DATE: 2002-06-28

NUMBER OF SEQ ID NOS: 386

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 48

LENGTH: 337

TYDE: PRT

ORGANISM: Unknown

FEATURE:
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Search completed: April 27, 2006, 01:06:08 Job time : 109.044 Becs
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Matches 252; Conserval
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APPLICANT: Di Cosimo, Robert
APPLICANT: Payne, Mark
APPLICANT: Payne, Mark
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: PATENTIAN OF SEQ ID NOS: 18
LENGTH: 369
TYPE: PRT
ORGANISM: Artificial sequence
PRATTURE.
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                                                                                                                                                              Sequence 16, Application US/10919182
publication No. US20060035352A1
GENERAL INFORMATION:
APPLICANT: E.I. duPont de Nemours and Company,
APPLICANT: Di Cosino, Robert
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   SEQ ID
APPLICANT: Payne, Mark
APPLICANT: O'Keefe, Daniel
APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOPTWARE: Patentin version 3.2
SEQ ID NO 16
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; OTHER INFORMATION: Mutant nitrilase with Phe168 to Val change US-10-919-182-16
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; TYPE: PRT
; ORGANIZM: Acidovorax facilis 72W
US-10-919-182-4
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US-10-919-182-4
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Best Local Similarity
Matches 150; Conserv
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                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn version 3.2
SEQ ID NO 4
LENGTH: 369
                                                                                                                                                                                                      Query Match
Best Local Similarity
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                                                                                                                                                                                          Matches
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APPLICANT: Di Cosimo,
APPLICANT: Payne, Mar
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TYPE: PRT
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LKPTHVERTIYGEGNGTDFLTHDFAFGRVGGLNCWEHFQPLSKFMMYSLGEQVHVASWPA 190
                                                               SRYHENSLELGDDRMRRLQLAARRNKIALVMGYSEREAGSRYLSOVFIDERGEIVANRRK 130
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Pred. No. 6.3e-67;
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Pred. No. 7.8e-67;
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RESULT 6
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                                                 Sequence 12, Application US/10919182 Publication No. US20060035352A1 GENERAL INFORMATION:
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APPLICANT: O'Keefe, Daniel
TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 6
LENGTH: 369
TYPE: PRT
ORGANISM: Artificial sequence
FEATURE:
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Publication No. US20060035352A1
GENERAL INFORMATION:
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Best Local S
APPLICANT: E.I. duPont (APPLICANT: Di Cosimo, la APPLICANT: Payne, Mark
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APPLICANT: Di C
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                duPont de Nemours and
Cosimo, Robert
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                                   Company,
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APPLICANT: B.I. duPont de Nemours and Company, Inc.
APPLICANT: Di Cosimo, Robert
APPLICANT: D' Cosimo, Robert
APPLICANT: D' Xeefe, Mark
APPLICANT: D' STATE, Daniel
ITITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACI
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 14
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Matches 150
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TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
SOFTWARE: Patentin version 3.2
SEQ ID NO 12
                                                        Matches
                                                                         Query Match
Best Local
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Publication No. US20060035352A1
                                                                                                                                           FEATURE: OTHER INFORMATION: Mutant nitrilase with
                                                                                                                                                                    TYPE: PRT
ORGANISM: Artificial sequence
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TYPE: PRT
ORGANISM: Artificial sequence
FEATURE:
OTHER INFORMATION: Mutant nitrilase with Thr210 to Cys change
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                                                                         Similarity
ACVQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSPAWAMQFV 67
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                                                        Conservative
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                                                                     43.98;
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47.6%; Pred. No. 1.2e-66;
tive 60; Mismatches 101;
                                                      61;
                                                      Score 774; DB 6;
Pred. No. 1.2e-66;
51; Mismatches 100
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                                                                                      Length 369,
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US-10-919-182-8
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SEQ ID NO 8
LENGTH: 369
TYPE: PRT
ORGANISM: Artificial sequence
FEATURE:
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TITLE OF INVENTION: PRODUCTION OF 3-HYDROXYCARBOXYLIC ACIC USING NITRILASE MUTANTS
FILE REFERENCE: CL2584 US NA
CURRENT APPLICATION NUMBER: US/10/919,182
CURRENT FILING DATE: 2004-08-16
NUMBER OF SEQ ID NOS: 18
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RNHTPVHRIGIDGRL 324
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                                                                                                                                                                                                              LKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEIHCAAWPS 187
                                                                                                                                                                                                                                                    SRYHENSLELGDDRMRRLQLAARRNKIALVMGYSEREAGSRYLSQVFIDERGEIVANRRK
                                                                                                                                                                                                                                                                             ROYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNGDTIGARRK 127
                                                                                                                                                                                                                                                                                                              ATVQAEPVWLDADATIDKSIGIIEBAAQKGASLIAFPEVFIPGYPYWAWLGDVKCSLSFT
                                                                                                                                                                                                                                                                                                                                              ACVOAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSPAWAMQFV
                                                                                                                         MSPLQPDVFQ-LSIEANATVIRSYAIEGQTFVLCSTQVIGPSAIETFCLNDEQRALLPQG
 RNHTPVHRIGIDGRL
                             SPKLPV--VEIEGDL
                                                             CGWARIYGPDGSELAKPLAEDAEGILYAEIDLEQILLAKAGADPVGHYSRPDVLSVQFDP
                                                                                        GGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKWAADPAGHYSRPDITRLLIDR
                                                                                                                                                                                       LKPTHVERTIYGEGNGTDFLTHDFAFGRVGGLNCWEHFQPLSKIMMYSLGEQVHVASWPA
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Sequence 20687 Application US/11096568A

Publication No. US20060048240A1

GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA F
TITLE OF INVENTION: Therby
FILLE REFERENCE: 2750-1592FUS2
FILLE REFERENCE: 2750-1592FUS2
CURRENT APPLICATION NUMBER: US/11/096,568A

CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20687

LENGTH: 333
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NAME/KEY: misc feature
LOCATION: (1)...(333)
OTHER INFORMATION: Ceres Seq. ID
US-11-096-568A-20687
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US-11-096-568A-20687
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US-11-096-568A-20686
                                                                                                                                                                                   Sequence 20686, Application US/11096568A
Publication No. US20060048240A1
GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA Fragments and Corresponding Polypeptides
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
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Best Local Similarity
                                                                                CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
RUMBER OF SEQ ID NOS: 34471
SEQ ID NO 20686
LENGTH: 351
TYPE: PRT
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NAME/KEY: misc_feature LOCATION: (1)...(351) OTHER INFORMATION: Cere
                                                                   ORGANISM: Zea mays subsp.
                                                   FEATURE:
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   Ceres
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   Seq.
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; LOCATION: (1)..(330)
; OTHER INFORMATION: Ceres Seq. ID no.
US-11-096-568A-6955
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US-11-096-568A-6955
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Best Local Similarity
Matches 111; Conserv
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SEQ ID NO 6955
LENGTH: 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 6955, Application US/11096568A Publication No. US20060048240A1 GENERAL INFORMATION: APPLICANT: Alexandrov, Nickolai et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: Sequence-Determined TITLE OF INVENTION: Therby
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Glycine max FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                   115 IGDNGDTIGARRKLKPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALY 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 HCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQSMID-----MLCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              236 DDEK---HALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVRILAKMAADPAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107;
                                                                                                                                                                       65 SIGNRTVKGREEFRKYHSAAIDVPGPEVDRLAAMAGKYKVHLVMGVIERDGYTLYCTVLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  91
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                                                         AQNEEIHCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLAS---CA-----
                                                                                                                                                                                                                                              VRATVVQASTIFYDTPATLDKAERLLAEATSYGSQLVVFPEAFVGGYP-----RGSAFGL
                                                                                                                                                                                                                                                                               IKVACVQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIFGYPWFLWLDSPAWAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HYSRPEVLSLVVKSDPK-PAV 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYSRPDITRLLIDRSPKLPVV 313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LEEEPSPESVVCSGG--SVIISPLGTVLAGPNYES-EALLTADLDLGEIVRAKFDFDVVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YCA--PTVDCMPTW-----LSSMTHIALEGGCFVLSACQFCRRKNYPPPPEYTFCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YLGKHRKVMPTALERVFWGFGDGSTIPVYDTPIGKMGALICWENRMPLLRTAMYAKGIEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AKGKEDFOKYHASAIDVPGPEVSRLSALAGKYKVFLVIGVVERAGYTLYNTVLSFDPLGK 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AWAMQFVRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWFIGDNGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RVTVVQASSVFYDTPATLDKAEKLVAEAAGYGSQLVLFPEVFVGGYPHGSTFGLVVGNRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KVACVQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYP-----WFLWLDSP 60
                                                                                                  FDSQGHYLGKHRKIMPTALERVIWGFGDGSTIPVFETPVGKIGAAICWENRMPLLRTAMY
                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                          ---VRQYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISQWF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25.6%; Score 451; DB 7; Length 351; 33.3%; Pred. No. 1.5e-35;
                                                                                                                                                                                                                                                                                                                                         25.3%; Score 446.5; DB 7; Length 330; 33.5%; Pred. No. 3.8e-35;
                         PTAD---ARDVWQASMTHIALEGGCFVLSANQFCRRRDYPPPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 68;
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                                                                                                                                                                                                                                                                                                                        Mismatches
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                                                                                                                                                                                                                                                                                                                        113;
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                                                                                                                                                                                                                                                                                                                        Indels
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Sequence 6956, Application US/11096568A
Publication No. US20060048240A1
GENERAL INFORMATION:
APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNA Fr.
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1592PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 6956
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US-11-096-568A-6954
; Sequence 6954, Application US/11096568A
; Publication No. US20060048240A1
; GENERAL INFORMATION:
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CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
NUMBER OF SEQ ID NOS: 34471
SEQ ID NO 6554
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TITLE OF INVENTION: Sequence-Determined
TITLE OF INVENTION: Therby
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NAME/KEY: misc_feature
LOCATION: (1)..(350)
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nes 111; Conserv
                                                                                                                                                                                                                                                                                                                        282
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                                                                                                                                                                                                                                                                                                                                                                                               224 --LVSQSMIDMLCTDDEKHALLLAGGGHSRIIGPDGGDLVAPLAENEEGILYANLDPGVR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                       AQNEEIHCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLAS---CA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FDSQGHYLGKHRKIMPTALERVIWGFGDGSTIPVFETPVGKIGAAICWENRMPLLRTAMY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIGNRTVKGREEFRKYHSAAIDVPGPEVDRLAAMAGKYKVHLVMGVIERDGYTLYCTVLF 144
                                                                                                                                                                                                                                                                                   ARAKFDFDVVGHYSRPEVLSLTVKDHPTNPV
                                                                                                                                                                                                                                                                                                                    ILAKMAADPAGHYSRPDITRLLIDRSPKLPV 312
                                                                                                                                                                                                                                                                                                                                                            EYVFAGTEVDL -- TPD --- SVVCAGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                    AKGVETYCA-----PTAD---ARDVWQASMTHIALEGGCFVLSANQFCRRRDYPPPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QF------VROYHENSLELDGPQAKRISDAAKRLGIMVTLGMSERVGGTLYISOWF 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IKVACYQAAPIYMDLEATVDKTIELMEEAARNNARLIAFPETWIPGYPWFLWLDSPAWAM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 446.5; DB 7; Pred. No. 4.1e-35; 0; Mismatches 113;
                                                                                                                                                                                                                                                                                                                                                            -SVIISPLGAVLAGPNYDG-EALISADLDLGEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA Fragments and Corresponding Polypeptides
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                                                                                                                 Fragments
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                                                                                                                 and Corresponding Polypeptides
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; LENGTH: 233
; TYPE: PRT
; ORGANIAN: Glycine max
; FEATURE:
; NAME/KEY: misc_feature
; LOCATION: (1). (233)
; OTHER INFORMATION: Ceres Seq. I.
US-11-096-568A-6956
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US-11-096-568A-20688
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Matches
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 20688
LENGTH: 193
TYPE: PRT
ORGANISM: Zea mays subsp. mays
                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 68; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Alexandrov, Nickolai et al.
TITLE OF INVENTION: Sequence-Determined DNP
TITLE OF INVENTION: Therby
FILE REFERENCE: 2750-1552PUS2
CURRENT APPLICATION NUMBER: US/11/096,568A
CURRENT FILING DATE: 2005-04-01
                                                                                                                                                                                                                                                                                                                                       FEATURE:

NAME/KEY: misc feature
LOCATION: (1)...(193)

OTHER INFORMATION: Ceres Seq. ID
-11-096-568A-20688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 34471
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       209 IYAVEGOCFVLAS---CA------LVSQSMIDMLCTDDEKHALLLAGGGHSRIIGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       164 LGAVLAGPNYDG-EALISADLDLGEIARAKFDFDVVGHYSKPEVLSLTVKDHPTNPV 219
                                                                                                                                                                                                                        130 PTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPLTKYALYAQNEEIHCAAWPSFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62 FETPVGKIGAAICWENRMPLLRTAMYAKGVEIYCA-----PTAD---ARDVWQASMT 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            89 AKRLGIMVTLGMSERVGGTLYISQWFIGDNGDTIGARRKLKPTFVERTLFGEGDGSSLAV 148
168
                                302
                                                                111
                                                                                                242 LILAGGGHSRIIGFDGGDLVAFLAENEEGILYANLDFGVRILAKWAADFAGHYSRFDITR 301
                                                                                                                                                                    190 LYPNAAKALGPDVNVAASRIYAVEGOCFVLASCALVSOSMID-----MLCTDDEK---HA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                85;
                                                                                                                                  60 CMPTW------LSSMTHIALEGGCFVLSACQFCRRXNYPPPPEYTFCGLEEEPSPES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N
                                                                                                                                                                                                   2 PTALERVFWGFGDGSTIPVYDTPIGKMGALICWENRMPLLRTAMYAKGIEIYCA--PTVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FETSVGRLGGLCCWEHLQPLTKYALYAQNEEIHCAAWPSFSLYPNAAKALGPDVNVAASR 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGKYKVHLVMGVI ERDGYTLYCTVLFFDSQGHYLGKHRKIMPTALERVIWGFGDGSTIPV
                                                                VVCSGG--SVIISPLGTVLAGPNYES-EALLTADLDLGEIVRAKFDFDVVGHYSRPEVLS
                                  LLIDRSPKLPVV 313
LVVKSDPK-PAV 178
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                                                                                                                                                                                                                                                                         Conservative
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                                                                                                                                                                                                                                                                         15.6%; Score 274.5; DB 7; 35.4%; Pred. No. 7e-19; tive 36; Mismatches 65;
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Pred. No. 1.9e-23;
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                                                                                                                                                                                                                                                                            Indels
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RESULT 15
US-11-079-463-5457
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 78
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SEQ ID NO 5457
LENGTH: 295
TYPE: PRT
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TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO
TITLE OF INVENTION: FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: PATH00-03DIV2
CURRENT APPLICATION NUMBER: US/11/079,463
CURRENT FILING DATE: 2005-03-14
PRIOR APPLICATION NUMBER: US 60/128,705
PRIOR FILING DATE: 1999-04-09
PRIOR FILING DATE: 1999-04-09
PRIOR FILING DATE: 1999-04-04
PRIOR FILING DATE: 1999-04-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Match 7.1%; Score 125; DB 7; Length 295; Local Similarity 22.7%; Pred. No. 0.00032; Nes 78; Conservative 44; Mismatches 106; Indels 116;
                                                                                                                                            185
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                                                                                                                                                                                                                                                                                                   103 VVFDRDGSIAGKYRKMHIPDDPAYYEKFYFTPGD-IGFEPIQTSLGKLGVLVCWDQ----
                                                                                                                                                                                                                                                                                                                                    113 WFIGDNGDTIGARRKL----KPTFVERTLFGEGDGSSLAVFETSVGRLGGLCCWEHLQPL 168
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                                                                                                                                                                                                                                                              TKYALYAQNEEIHCAAWPSFSLYPNAAKALGPDVNVAASRIYAVEGQCFVLASCALVSQS
                                                                                                       YANLDPGVRILAKMAADPAGHYSRPDITRLLIDRSPKLPVVEIE 316
                                                                                                                                                                                 MIDMLCTDDEK----HALLLAGGGHSRIIG------PDGGDLVAPLAENEEGIL 272
                                                                  WGN - - - - -
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                                                                -SFVAGPQGEY----LAQAGNDRSENM-IVEVD
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